INNONICS®
Digital Paradigm Evolution Leader

Zoran Solution DVD

Service Manual



R&K INTERNATIONAL CO., LTD.

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Terminology & Abbreviations

AC-3 The former name of the Dolby Digital audio-coding system . AC-3 followed AC-1 and AC-2. Still used in some standards documents.

Angle In DVD-video, a specific view of a scene, usually recorded from a certain camera angle. Different angles can be chosen while viewing the scene.

CD Short for compact disc, an optical disc storage format developed by Philips and Sony.

CD-DA Compact disc digital audio. The original music CD format, storing audio information as digital PCM data. Defined by the Red Book standard.

CD+G Compact disc plus graphics. A variation of CD which embeds graphical data in with the audio data, allowing video pictures to be displayed periodically as music is played. Primarily used for karaoke.

CD-R An extension of the CD format allowing data to be recorded once on a disc by using dye-sublimation technology. Defined by the Orange Book standard.

Channel A part of an audio track. Typically there is one channel allocated for each loudspeaker.

Chapter In DVD-Video, a division of a title. Technically called a part of title (PTT).

Closed Caption Text captions for video which are not normally visible, as opposed to open captions, which are a permanent part of the picture. In the United States, the official NTSC Closed Caption standard requires that all TVs larger than 13 inches include circuitry to decode and display caption information stored on line 21 of the video signal. DVD-Video can provide closed caption data, but the subpicture format is preferred for its versatility.

Component Video A video system containing three separate color component signals, either red/green/blue (RGB) or chroma/color difference (YGbCr, YPbPr, YUV), in analog or digital form. The MPEG-2 encoding system used by DVD is based on color-difference component digital video. Very few televisions have component video inputs.

Composite Video An analog video signal in which the luma and chroma components are combined (by frequency multiplexing), along with sync and burst. Also called CVBS. Most televisions and VCRs have composite video connectors, which are usually colored yellow.

CD-i Compact disc interactive. An extension of the CD format designed around a set-top computer that connects to a TV to provide interactive home entertainment, including digital audio and video, video games, and software applications. Defined by the Green Book standard. CD-i Assn.

Terminology & Abbreviations

Dolby Digital A perceptual coding system for audio, developed by Dolby Laboratories and accepted as an international standard. Dolby Digital is the most common means of encoding audio for DVD-Video and is the mandatory audio compression system for 525/60 (NTSC) discs.

Dolby Surround The standard for matrix encoding surround-sound channels in a stereo signal by applying a set of defined mathematical functions when combining center and surround channels with left and right channels. The center and surround channels can then be extracted by a decoder such as a Dolby Pro Logic circuit which applies the inverse of the mathematical functions. A Dolby Surround decoder extracts surround channels, while a Dolby Pro Logic decoder uses tially independent of the recording or transmission format. Both Dolby Digital and MPEG audio compression systems are compatible with Dolby Surround audio.

DTS Digital Theater Sound. A perceptual audio-coding system developed for theaters. A competitor to Dolby Digital and an optional audio track format for DVD-Video.

DVCD Stands for Double Video CD -- pretty popular format in mainland China.
Format itself is nothing new really, its just a regular VideoCD overburned to include 90 to 99mins per CD, compared to regular 74mins per CD in standard VideoCD format.

DVD An acronym that officially stands for nothing, but is often expanded as Digital Video Disc or Digital Versatile Disc. The audio/video/data storage system based on 12-and 8-cm optical discs.

DVD+R DVD+Recordable defines a standard for recordable DVD drives and media defined by the DVDRW Alliance. Often called "plus R", the format is write once (compared to DVD+RW wich can be erased and rewritten). The single sided discs can hold 4,700,000,000 bytes (4.38 Gigabytes at 1024 bytes to the kilobyte) with double sided discs holding twice as much. There are no dual layer single sided recordable discs. This format competes with the DVD Forum DVD-R specification. DVDRhelp DVDR information

JPEG Joint Photographic Experts Group. The international committee which created its namesake standard for compressing still images.

Karaoke Literally empty orchestra. The social sensation from Japan where sufficiently inebriated people embarrass themselves in public by singing along to a music track. Karaoke was largely responsible for the success of laserdisc in Japan, thus supporting it elsewhere.

Kodak Picture CD Kodak Picture CD is a CD that contains your pictures in JPEG format(.jpg) along with software that lets you view, enhance, share, and print your pictures from your computer. Some standalone DVD Players supports this format also, but then only for viewing. This format will also work on DVD Players that supports "JPEG file viewing" but you may lose some Kodak Picture CD specific features. Kodak Picture CD.

Macrovision An antitaping process that modifies a signal so that it appears unchanged on most televisions but is distorted and unwatchable when played back from a videotape recording. Macrovision takes advantage of characteristics of AGC circuits and burst decoder circuits in VCRs to interfere with the recording process.

Terminology & Abbreviations

MP3 MP3 is an acronym for MPEG-1 (or MPEG-2) Layer 3 audio encoding (it is not an acronym for MPEG3). MP3 is a popular compression format used for audio files on computers and portable devices.

The compression in MP3 works on the basis of a "psychoacoustic model" which means that parts of the audio that human ears cannot detect are discarded by the encoder. Although this is a LOSSY process, it can yield very high quality audio files are relatively high compression rates. A typical MP3 file encoded at 128 kbit/s (12:1 compression) is near CD quality.

MP3 audio is increasingly being used in video production coupled with various MPEG-4 video codecs like divx. The audio may be encoded with a constant or variable bitrate.

Multiangle A DVD-Video program containing multiple angles allowing different views of a scene to selected during playback.

Multilanguage A DVD-Video program containing sound tracks and subtitle tracks for more than one language.

RGB Video information in the form of red, green, and blue tristimulus values. The combination of three values representing the intensity of each of the three colors can represent the entire range of visible light.

S/N Signal-to-noise ratio. Also called SNR.

SACD Super Audio CD is the next generation of audio disc, offering full-range, uncompressed digital multi-channel surround sound. SACD can also be backward compatible using so called hybrid discs with an extra layer that allows them to be played on conventional CD players but then only with ordinary CD quality. SACD can be played on SACD Players, DVD Players with SACD support and if using hybrid discs also CD Players. SACD is currently competing with DVD-Audio as the new audio defacto standard. Philips SACD information.

Subtitle A textual representation of the spoken audio in a video program. Subtitles are often used with foreign languages and do not serve the same purpose as captions for the hearing impaired.

SVCD SVCD stands for 'Super VideoCD'. A SVCD is very similiar to a VCD, it has the capacity to hold about 35-60 minutes on 74/80 min CDs of very good quality full-motion MPEG-2 video along with up to 2 stereo audio tracks and also 4 selectable subtitles. A SVCD can be played on many standalone DVD Players and of course on all computers with a DVD-ROM or CD-ROM drive with the help of a software based decoder / player. SVCDHelp.com.

S-video A video interface standard that carries separate luma and chroma signals, usually on a four-pin mini-DIN connector. Also called Y/C. The quality of s-video is significantly better than composite video since it does not require a comb filter to separate the signals, but it’s not quite as good as component video. Most high-end televisions have s-video inputs. S-video is often erroneously called S-VHS.

System menu The main menu of a DVD-Video disc, from which titles are selected. Also called the title selection menu or disc menu

Terminology & Abbreviations

Title The largest unit of a DVD-Video disc (other than the entire volume or side). Usually a movie, TV program, music album, or so on. A disc can hold up to 99 titles, which can be selected from the disc menu.

VCD VCD stands for 'Video Compact Disc' and basically it is a CD that contains moving pictures and sound. If you're familiar with regular audio/music CDs, then you will know what a VCD looks like. A VCD has the capacity to hold up to 74/80 minutes on 650MB/700MB CDs respectively of full-motion video along with quality stereo sound. VCDs use an encoding standard called MPEG-1 to store the video and audio. A VCD can be played on almost all standalone DVD Players and of course on all computers with a DVD-ROM or CD-ROM drive with the help of a software based decoder / player. VCDHelp.com.

YUV In the general sense, any form of color-difference video signal containing one luma and two chroma components. Technically, YUV is applicable only to the process of encoding component video into composite video.

WMF Windows Media Format files are audio/video files encoded with the Windows Media Encoder, providing high quality and media security for streaming and download-and-play applications on PCs, set-top boxes, and portable devices. Windows Media Format comprises Windows Media Audio and Video codecs, an optional integrated digital rights management (DRM) system, and a file container. Microsoft WMF Information

CVD China Video Disk - a precursor to SVCD marketed since 1998. Resolutions are 352x480 NTSC, 352x576 PAL, 44.1khz audio (unlike 1/2 D1 DVD that is the same resolution at 48khz audio). Not all players will play CVD (compatible players). CVD Guide

DivX DivX™ is a new format for digital video, much like MP3 is a format for digital music. DivX™ is the brand name of a patent-pending video compression technology created by DivXNetworks, Inc., (also known as Project Mayo). The DivX™ codec is based on the MPEG-4 compression standard. This codec is so advanced that it can reduce an MPEG-2 video (the same format used for DVD or Pay-Per-View) to ten percent of its original size. DivX.com.

DVD+RW DVD+RW is a ReWriteable media format of the DVD+R standard.

DVD-Audio DVD-Audio or sometimes called DVD-A is a separate format from DVD-Video. It is a format specifically designed to provide the highest possible audio fidelity capable on DVD. DVD-Audio provides for audio in stereo and in multi-channel surround in a wide range of specifications. In addition to audio, a DVD-Audio disk can contain a limited amount of video, which can be used to display text, such as lyrics or notes. DVD-Audio can only be played on DVD Players with DVD-Audio support (most DVD Players do not support this format). DVD-Audio is currently competing with SACD as the new audio defacto standard. DigitalAudioGuide DVD Audio FAQ

DVD-R DVD-Recordable defines a standard for recordable DVD drives and media defined by the DVD Forum. Often called "minus R", the format is write once (compared to DVD-RW wich can be erased and rewritten). The single sided discs can hold 4,700,000,000 bytes (4.38 Gigabytes at 1024 bytes to the kilobyte) with double sided discs holding twice as much. There are no dual layer single sided recordable discs. This format competes with the DVD+R format. DVDRhelp DVDR information

Terminology & Abbreviations

DVD-RAM A recordable format supported by the DVD Forum. It has superior recording features but it is not compatible with most DVD-ROM drives or DVD Video players. It works well when set up like a removable hard disk.

DVD-RW DVD-RW is a ReWriteable media format of the DVD-R standard.

DVD-Video DVD-Video is the video element of the DVD format. DVD Demystified DVD-Video Features.

DVD±R A term used to cover both the DVD-R and DVD+R standards in one word.

HDCD High Definition Compatible Digital® (HDCD®) is a patented encode/decode process for delivering the full richness and detail of the original microphone feed on Compact Discs and DVD-Audio. HDCD has been used in the recording of more than 5,000 CD titles, which include more than 250 Billboard Top 200 recordings and more than 175 GRAMMY® nominations, and account for more than 300 million CDs sold.

HDCD-encoded CDs sound better because they are encoded with 20 bits of real musical information, as compared with 16 bits for all other CDs. HDCD overcomes the limitation of the 16-bit CD format by using a sophisticated system to encode the additional 4 bits onto the CD while remaining completely compatible with the existing CD format. HDCD provides more dynamic range, a more focused 3-D soundstage, and extremely natural vocal and musical timbre. With HDCD, you get the body, depth, and emotion of the original performance not a flat, digital imitation.

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, the products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following pre-cautions when a set is being serviced.

・**Precautions during Servicing**

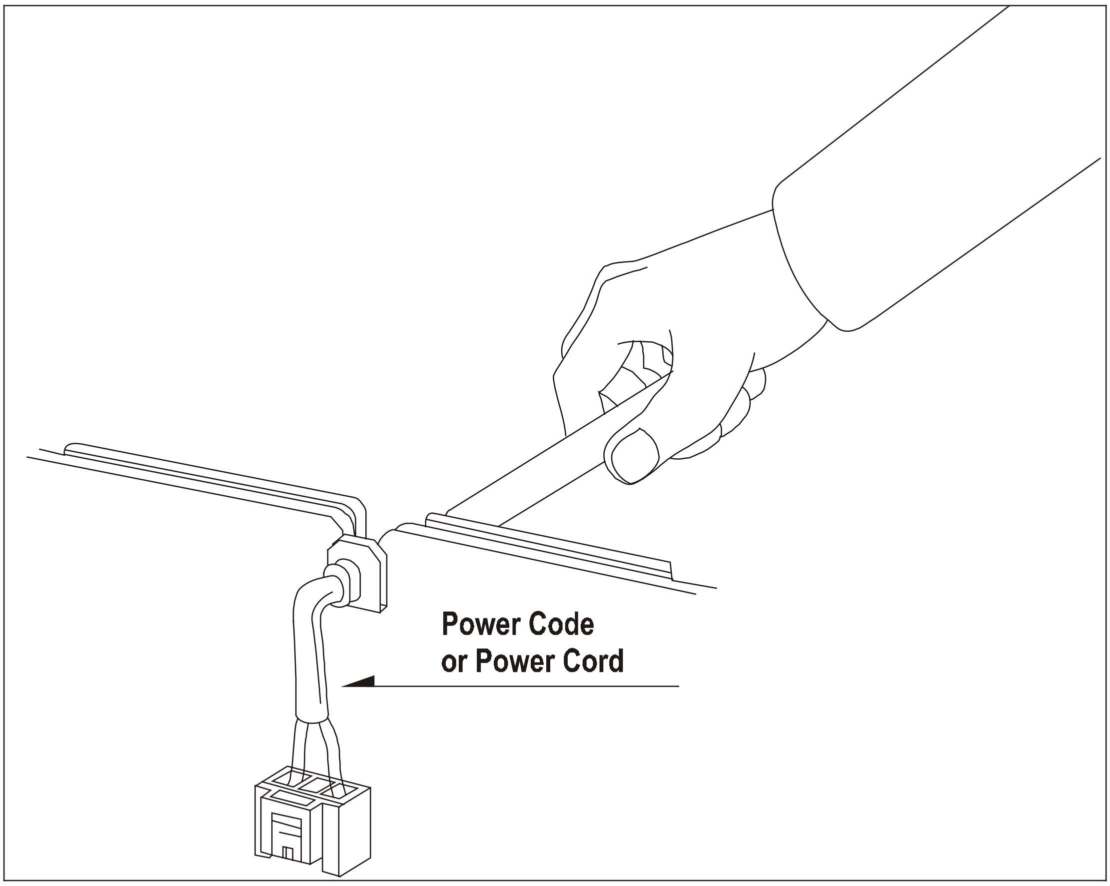
1. Locations requiring special caution are denoted by labels and inscriptions on the rear panel and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals .

2. Parts identified by the ⚠ symbol in schematic diagram parts are critical for safety.
   Replace only with specified part numbers.
   Note : Parts in this category also include those specified to comply with laser emission standards for Products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation.
3. Use Specified internal wiring. Note especially:
   1) Double insulated wires
   2)High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1)Insulation Tape
   2)PVC tubing
   3)Spacers
   4)Insulation sheets for transistor
5. Observe that wires do not contact heat producing
   PARTS (heatsinks, oxide metal film resistors ,fusible resistors ,etc .)

6.Check that replaced wires do not contact sharp edged or pointed parts .

7. 1)When a power cord has been replaced ,check that A mark is made on the cord ,under strain ,near the aperture ,and the flexible cord is subjected 100times to a pull of 40N for a duration of 1 second each .

2)During the test ,the cord shall not be displaced by more than 2mm



8.Also check areas surrounding repaired locations .

9. The internal wiring is secured so as not to approach the heating parts and high voltage parts by its shape.So, these wires must be restored to its former state.

10. After updated the hazardous live part or accessible part, if the clearance or creepage distance cann't accord with the safe request, then need adopt reinforced insulation method for ensure safety.

SAFETY CHECK AFTER SERVICING

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws ,parts and wires have been reterned to original positions .

Afterwards ,perform the following tests and confirm the specified values in order to verify compliance wit atfety standards .

SAFETY PRECAUTIONS

・**Insulation resistance test**

confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals ,antenna terminals ,video and audio input and output terminals ,microphone jacks ,earphone jacks ,etc .)See table below.

・**Dielectric strength test**

Confirm specified dielectric strength or greater between power cord prongs and exposed accessible parts of the set (RF terminals ,antenna terminals ,video and audio input and output terminals ,microphone jacks ,earphone jacks ,etc.)See table below .

・**Clearance distance**

When replacing primary circuit components ,confirm specified clearance distance (d),between soldered terminals ,and between terminals and surrounding metallic parts .See table below.

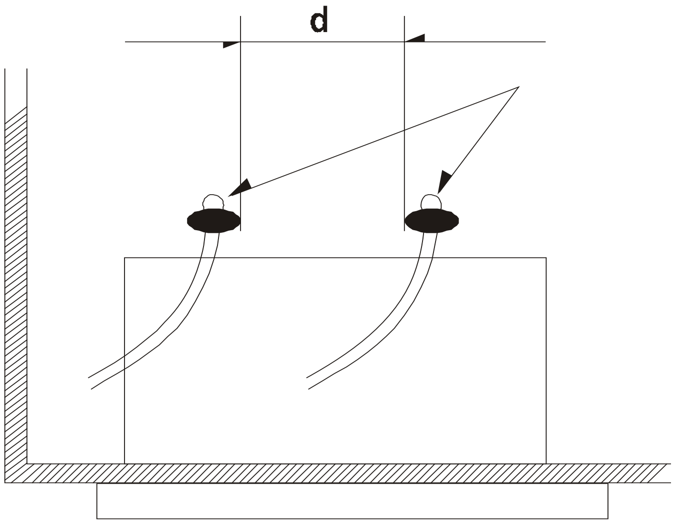


Table 1: Ratings for selected areas

AC Line Voltage	Region	Insulation Resistance	Dielectric Steength	Clearance Distance(d),(d)
*110 to 240 v 110 to 230 v	USA,Australia Europe	F 4M/500VD C	4kv/minute	F 6mm(d)

*Class ll model only .

Note . This table is unofficial and for reference only . Be sure to confirm the precise values for your particular country and locality.

・ **Leakage Current test**

Confirm specified or lower leakage current between B(earth ground ,power cord plug prongs) and externally exposed accessible (RF terminals ,antenna terminals ,video and audio input and output terminals ,microphone jacks ,earphone jacks ,etc .)

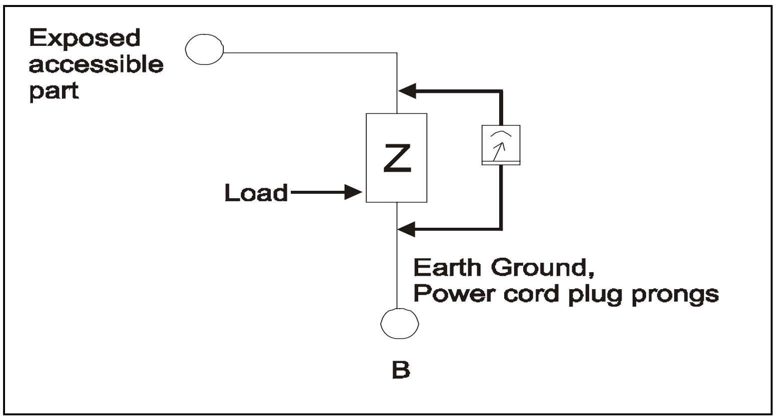
Measuring Method: (Power ON)

Insert load Z between B (earth ground ,power cord plug prongs)and exposed accessible parts .Use an AC voltmeter to measure across both terminals of load Z . See figure and following table .

Table 2: Leakage current ratings for selected areas .

AC Line Voltage	**Region**	**Load Z**	**Leakage Current(i)**	**Earth Ground (B) to :**
2k ohm 100 to 130 v	Europe		<or= 0.7mA peak <or= 2mA DC	Antenna earth Terminals
200 to 240 v 50k ohm	Australia		<or=0.7mA peak <or= 2mA DC	Other terminals

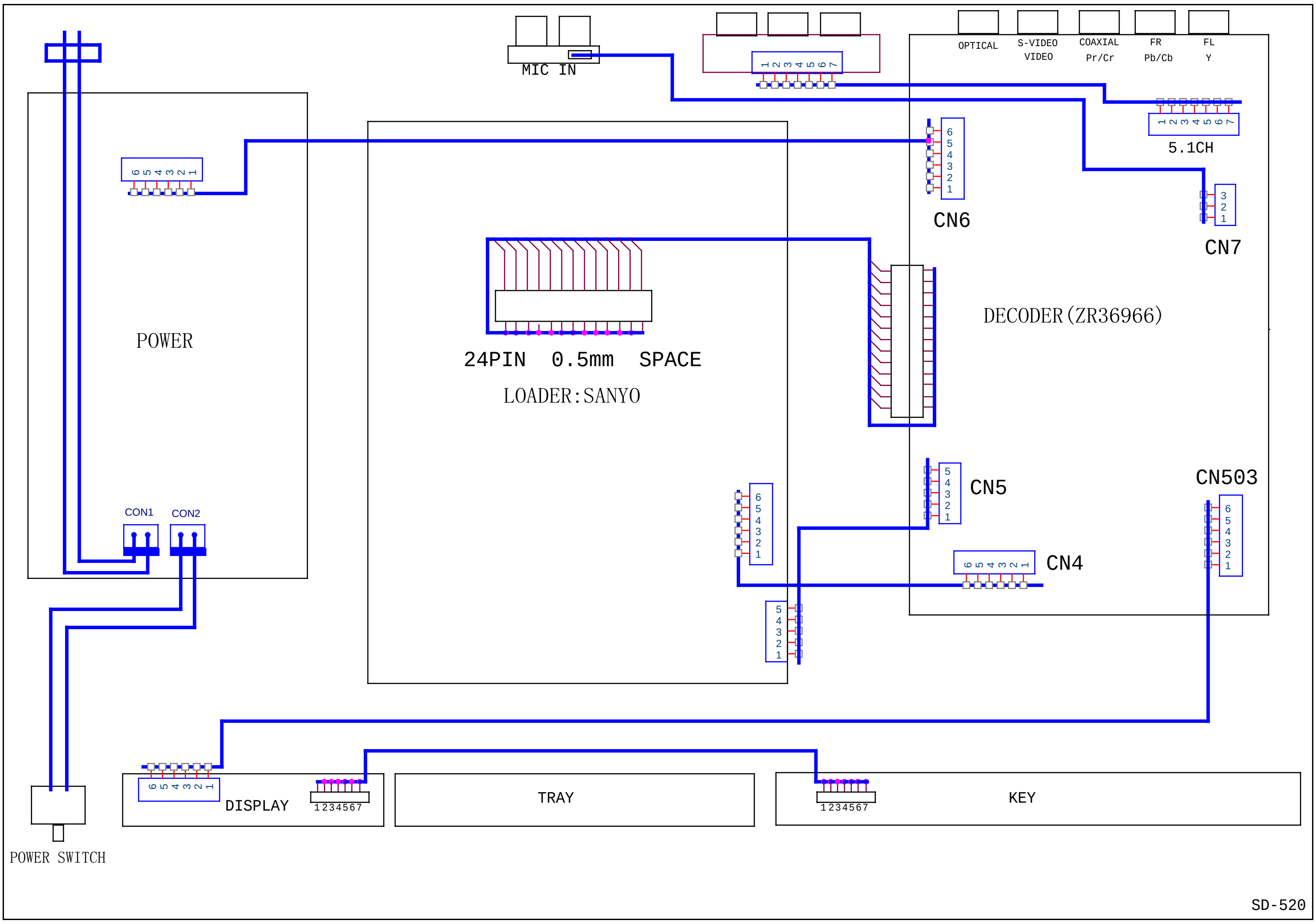
Note . This table is for IEC member only . Be sure to confirm the precise values for your particular country and locality.



Electrical Performance Standards

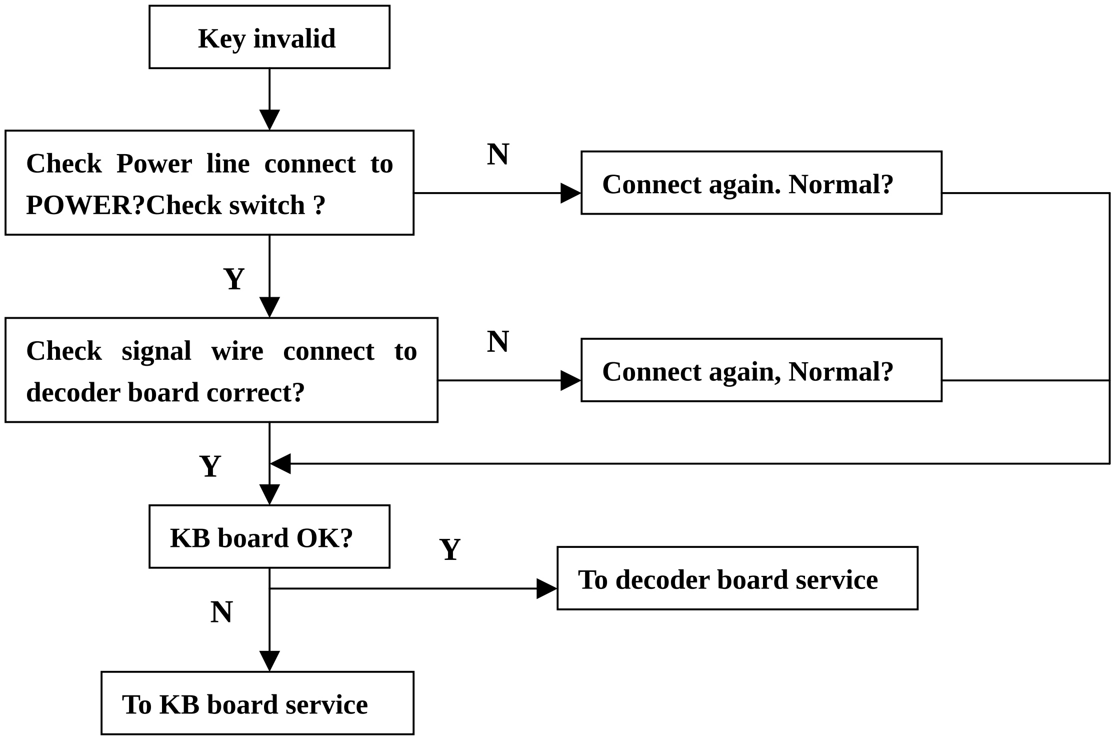
KEY PERFORMANCE LIST					
ITEM	TEST CONTENT			UNIT	SPECIFICATION
1	AUDIO CHARACTER	ANALOG OUTPUT LEVEL		(V) 10k LOAD	1.7±0.3
2		FREQUENCY RESPONSE	20Hz	dB	±2
			125Hz	dB	±2
			1KHz	dB	±2
			18KHz	dB	±2
			20KHz	dB	±2
3		S/N RATIO（A-WTD）		dB	≥90
4		THD+N		dB	≤-60(1KHz)
5		CROSS-TALK		dB	≥70
6		CHANNEL DIFFERENCE		dB	≤1.5
7		LEVEL NON-LINEAR	0	dB	±1
			-10		
			-20		
			-40		
			-60		
8		DYNAMIC RANGE		dB	≥75(1KHz)
9		DIGITAL OUTPUTLEVEL		(Vp-p)LOAD	0.5±0.05
10	VIDEO CHARACTER	VIDEO OUTPUT LEVET		Vp-p	1.0±0.2
11		HORIZONTAL DEFINITION		LINE	≥500
12		LUMINANCE CHNANEL BANDWITH		MHz	≥3.5
13		LUMINANCE NON-LINEAR DISTORTION		%	≤2
14		DIFFERENTIAL PHASE		DP(^{0})	≤8
15	MIC CHARACTER	OUTPUT LEVEL		(Vp-p) LOAD	1.5±0.5
		DISTORTION		%	≤0.5
		FREQUENCY RESPONSE (120Hz/5K)		dB	±3
		S/N RATIO		dB	≥45
16	OTHERS	REDING TIME		S	≤5
		LONG TIME READ TIME		S	≤10
		MAX POWER CONSUMER		VA or W	30
17	S-VIDEO LUMINANCE LEVEL			(Vp-p) LOAD	0.7±0.14
18	S-VIDEO COLOUR SYNCH LEVEL			(VP-P)LOAD	0.3±0.06

DVD Box Block Diagram

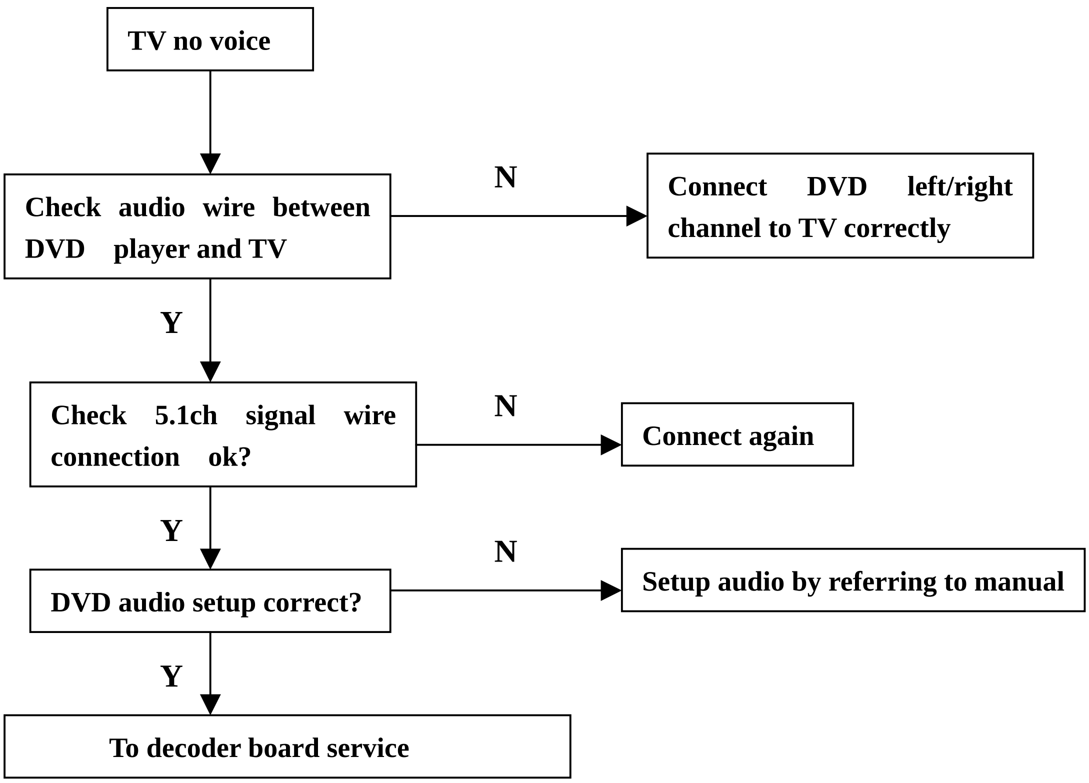


Common phenomenon classification

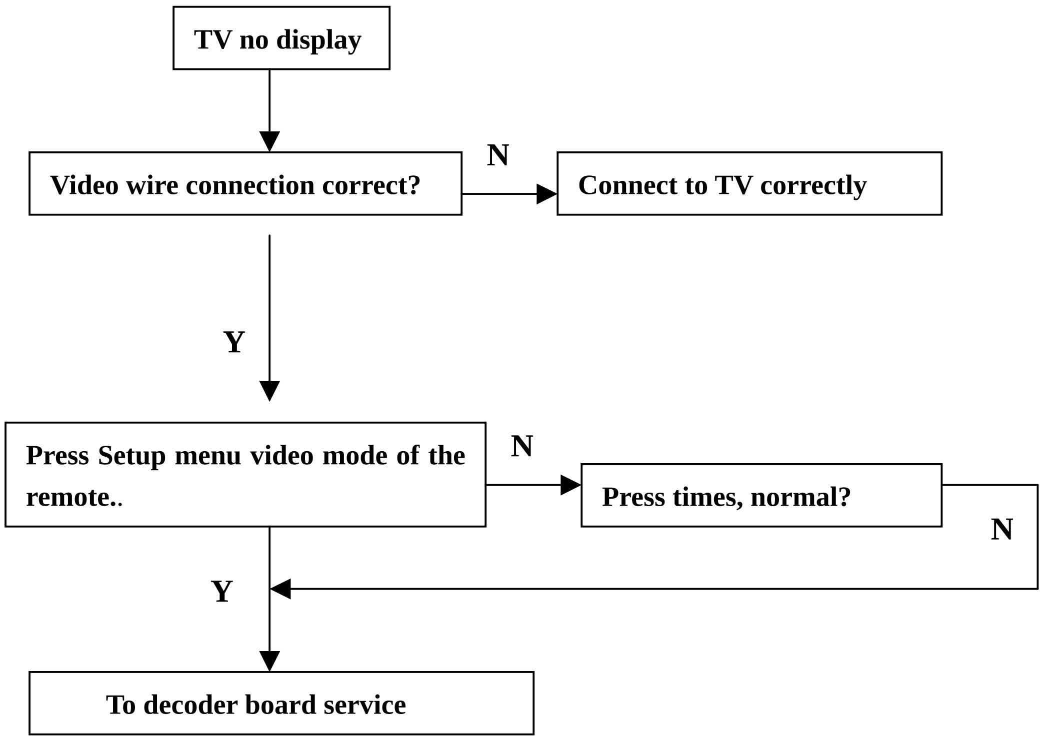
1.



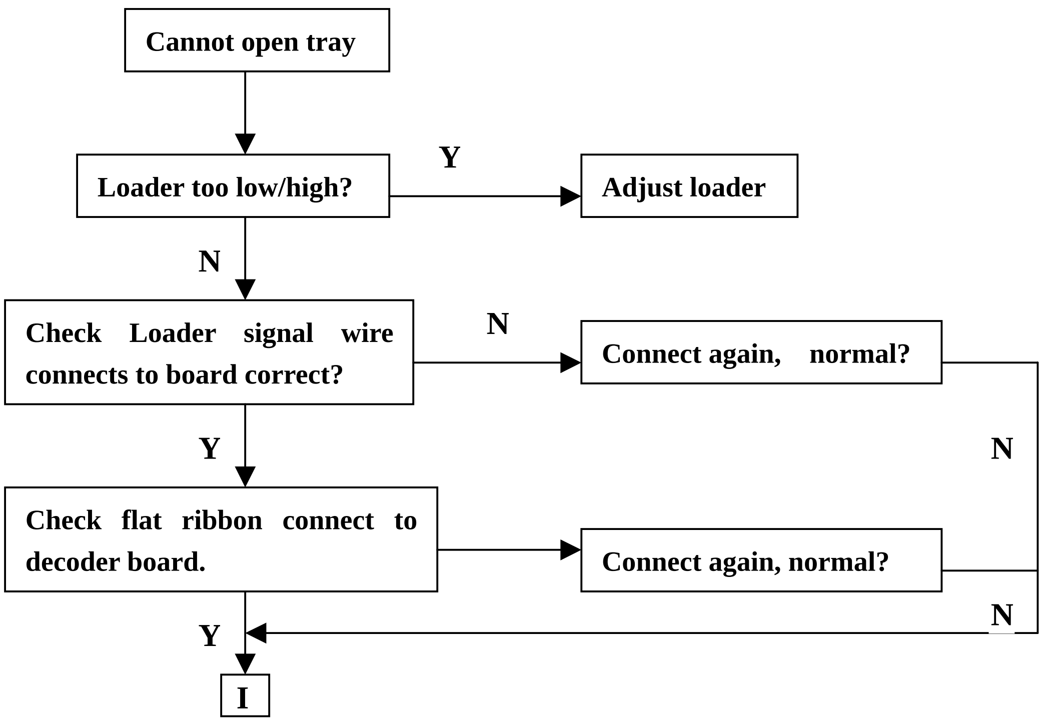
2.



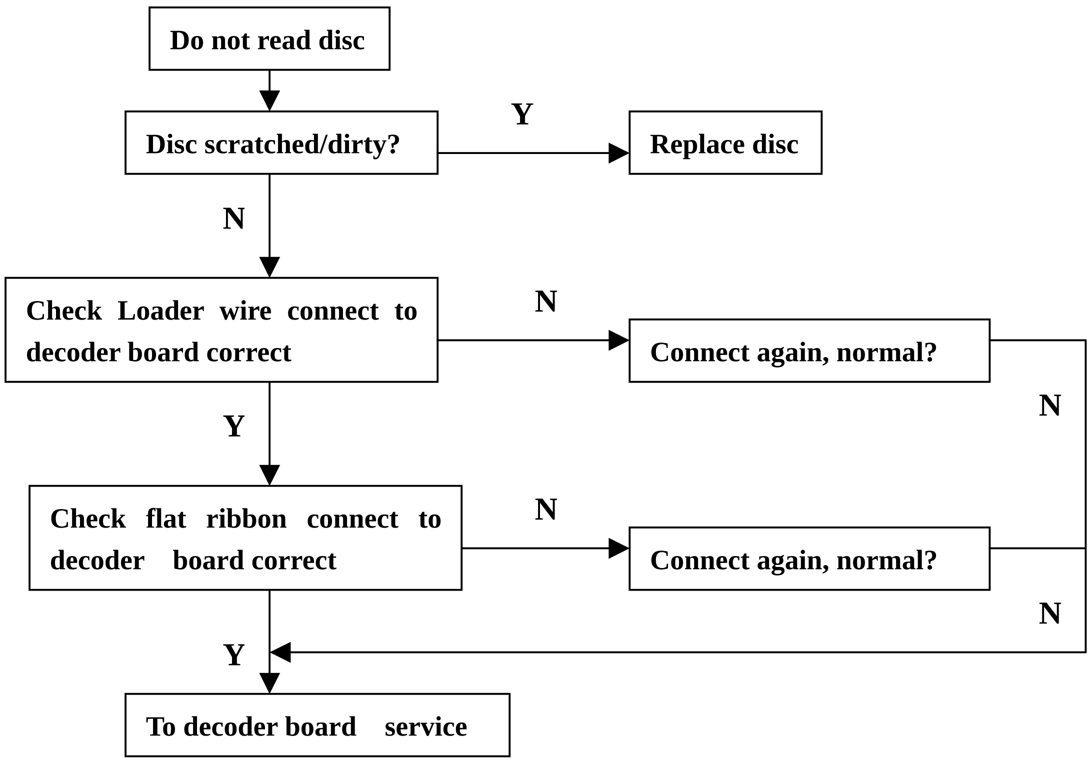
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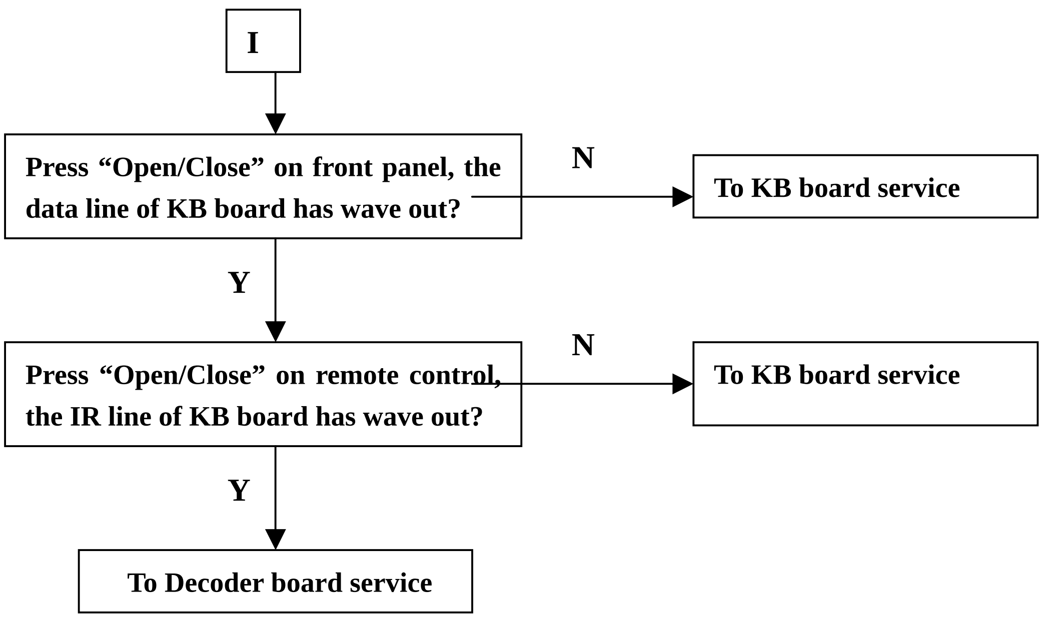

TV no display
Video wire connection correct?
N
Connect to TV correctly
Y
Press Setup menu video mode of the remote..
N
Press times, normal?
N
Y
To decoder board service

4.

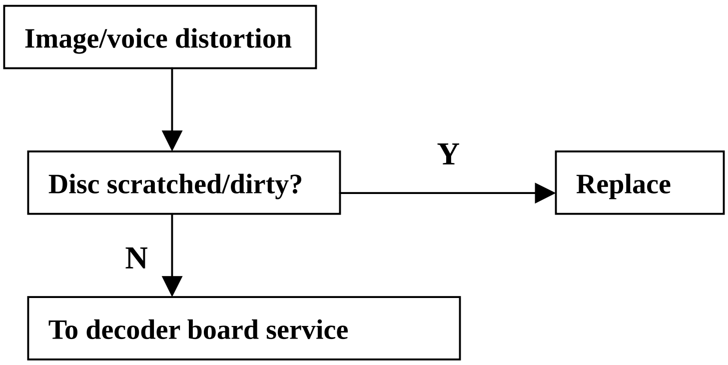

Cannot open tray
Loader too low/high?
Y
Adjust loader
N
Check Loader signal wire connects to board correct?
N
Connect again, normal?
Y
N
Check flat ribbon connect to decoder board.
Connect again, normal?
Y
N
I

5.

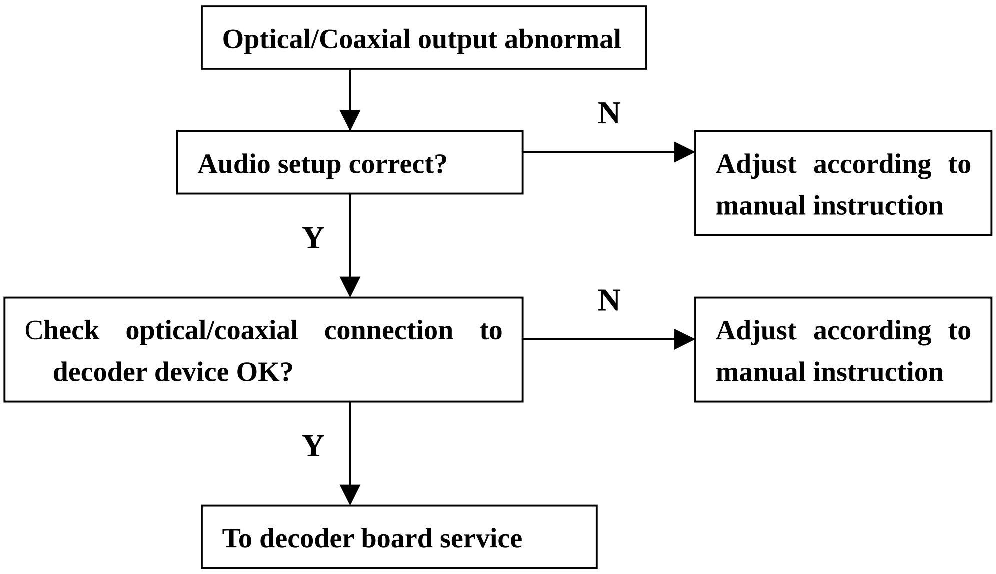

Do not read disc
Disc scratched/dirty?
Y
Replace disc
N
Check Loader wire connect to decoder board correct
N
Connect again, normal?
N
Y
Check flat ribbon connect to decoder board correct
N
Connect again, normal?
N
Y
To decoder board service


I
Press "Open/Close" on front panel, the data line of KB board has wave out?
N
To KB board service
Y
Press "Open/Close" on remote control, the IR line of KB board has wave out?
N
To KB board service
Y
To Decoder board service

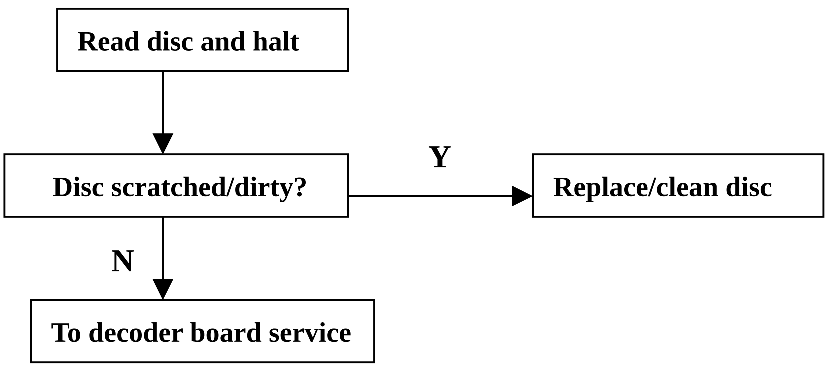
6.


Image/voice distortion
Disc scratched/dirty?
Y
Replace
N
To decoder board service

7.


Optical/Coaxial output abnormal
Audio setup correct?
N
Adjust according to manual instruction
Y
Check optical/coaxial connection to decoder device OK?
N
Adjust according to manual instruction
Y
To decoder board service

8.


Read disc and halt
Disc scratched/dirty?
Y
Replace/clean disc
N
To decoder board service

Judgment standard for loader damage

When below phenomenon exist, the loader may be damaged.

1. **no spin**
2. **no laser**
3. **cannot open/close tray normally**
4. **main axis turning, but no pickup focus or gliding**
5. **cannot read discs**

When above phenomenon exists, please try replacing loader to solve the problem.

Software update method

1.RECORDING UPDATING DISC.

Recording as a data disc containing belowed three files,.
build.img
ginger_release_dc0_dv34_1x16.bin
update.ver
NOTES: Don’t change the name of file;
Use new CD-R DISC;
Recording DISC type as DATA.

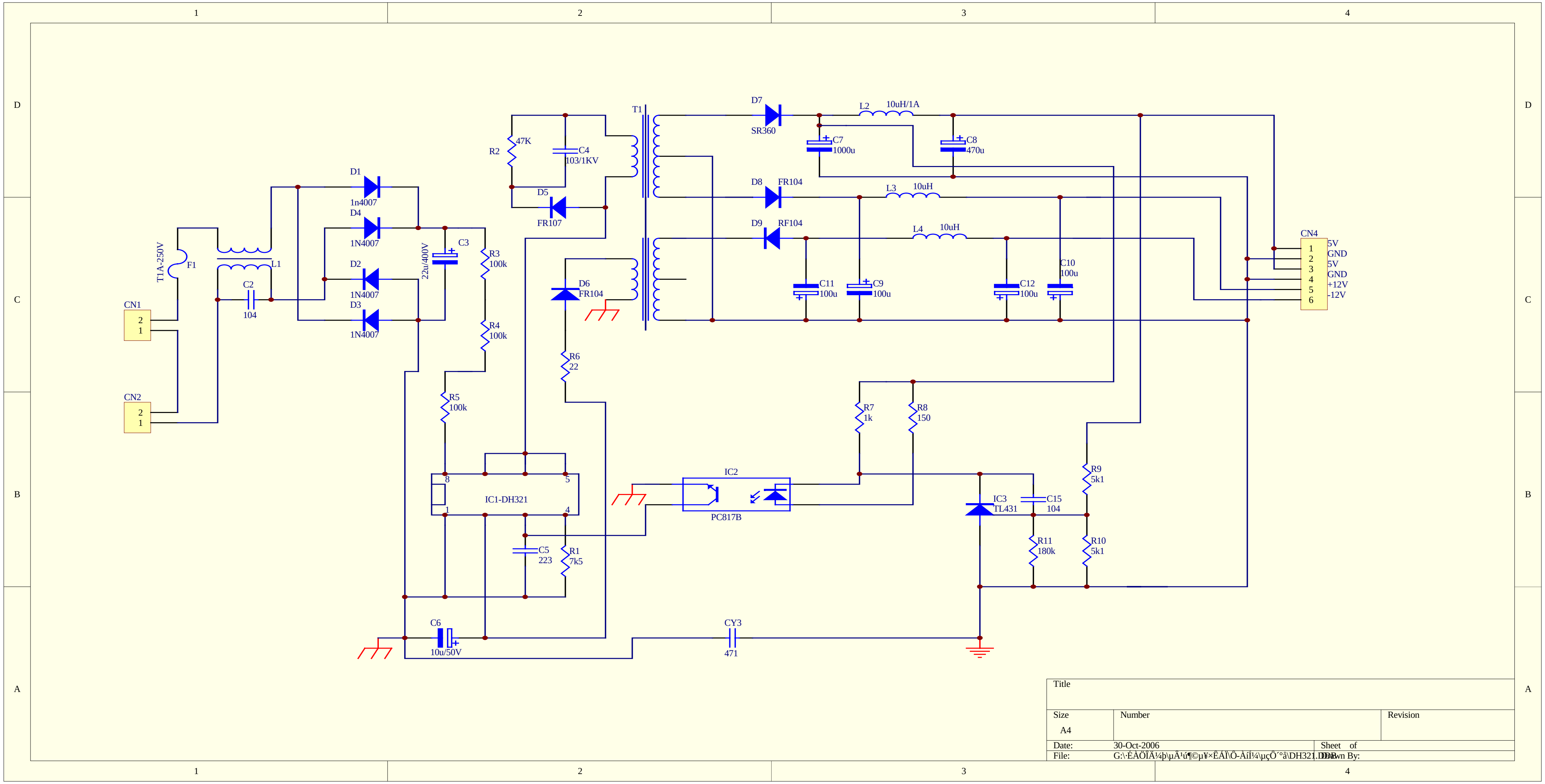
2.UPDATING

A Put the DISC into the unit, it will be reading automatically.
B When the information appeared on screen, press RIGHT button, to light the “START”, and press ENTER button
C The unit will read the data, and it will be tray out automatically when it finished.
D After the tray out, take off the disc. After updating, the tray in automatically.

NOTES: The whole process need about 4 minutes, please make sure of no power off happened.

3.CHECK THE SOFTWARE VERSION

Press “1 6 4 “number botton in “NO DISC” mode, it will display the new software version number.



T1A-250V
F1
L1
C2
104
CN1
CN2
D1
1n4007
D4
1N4007
D2
1N4007
D3
1N4007
C3
22u/400V
R3
100k
R4
100k
R5
100k
R2
47K
C4
103/1KV
D5
FR107
T1
D6
FR104
R6
22
IC1-DH321
C5
223
R1
7k5
C6
10u/50V
CY3
471
D7
SR360
C7
1000u
L2
10uH/1A
C8
470u
D8
FR104
L3
10uH
D9
RF104
L4
10uH
C11
100u
C9
100u
C12
100u
C10
100u
CN4
5V
GND
5V
GND
+12V
-12V
R7
1k
R8
150
IC2
PC817B
IC3
TL431
C15
104
R9
5k1
R11
180k
R10
5k1
Title
Size
A4
Number
Revision
Date:
30-Oct-2006
Sheet of
File:
Drawn By:

Repair of Power Board

I. Power switch working principles

The internal parts of main power switch IC DH321 (IC1) consist of: oscillation circuit, error test and T-ratio over current overheating protection, under-voltage and over voltage protection, and power-amp MOSFET. For descriptions of pins and block diagrams of internal IC, see appendix.

1. Conversion from AC. to DC. circuit

240V/110V AC. current flows restrictively through C1,fuse and L1 combines to be share-mode and differential-mode filter circuit, filtering external disturbance and preventing internal electromagnetic radiation, and through D1~D4 to combine as bridge rectification. After C3 undergoes electrolytic filter, we can obtain a 320/140V DC. voltage (Uhv).

2. Process to start up the software

Connect R6, D6 ,C6 and bias winding to the multi-functional VCC pin of IC1, test DC. input voltage Uhv. This can effect as a protective function to restrict under-voltage current and reduce over voltage T-ratio.

R3,R4,R5 is the charging circuits to start up software, and electric current inside IC1 flows from control pin 5. When Vc reaches 12V, internal oscillation circuit initiates, motivating power-amp MOSFET, forming AC. current on T1 primary winding, coupling to secondary winding. Power switch start-up has completed.

3. Bias winding

After starting the power, T1 bias winding supplies bias current and error current to pin2 of IC1, through D6,R6 and C6 rectifier filter .

4. Clamping protective circuit

C4, R2, D5 are connected to primary switch transformer, in order to fix the leakage electrode voltage of IC1 and to prevent the voltage exceeding the limit of IC1 leakage electrode voltage when switch transformer discharges at startup or overloading stage.

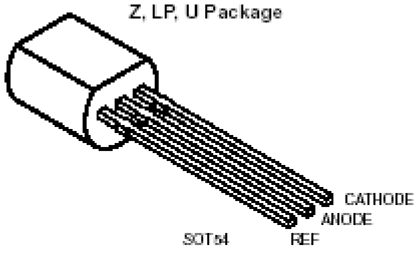
5. Regulation process of output voltage

When the input current of control pin (FB) IC1 decreases (or increases), oscillation waveform will be regulated automatically so that T ratio will increase (or decrease) and the output voltage will increase (or decrease).

Output voltage feedback circuit is completed by IC2, IC3.

IC3 (TL431) is a reference regulation IC, reference voltage is 2.5V:

Its pins are shown on the diagram below:



Main characteristics of TL431

(1) Anode voltage Vka, anode change in voltage
(2) reference voltage, reference change in voltage

Secondary main winding, set 5V to output change in voltage$\triangle$Vo; we can deduce $\triangle V_{R7}=356\triangle Vo$

From this formula we can deduce: If 5V Voltage rises, the voltage V_{R7} of the two ends of R7 will rise, error voltage increases by 356 times. V_{R7} error voltage is added to the light-emitting diode of IC3 optical coupling, so that the emitting intensity increases. Coupling increases the current of IC3 light-electric triode. The control current of IC2 then rises and the T ratio of open/close power reduces, thus reducing 5V output voltage.

On the other hand, if 5V voltage reduces, negative feedback will cause it to rise automatically.

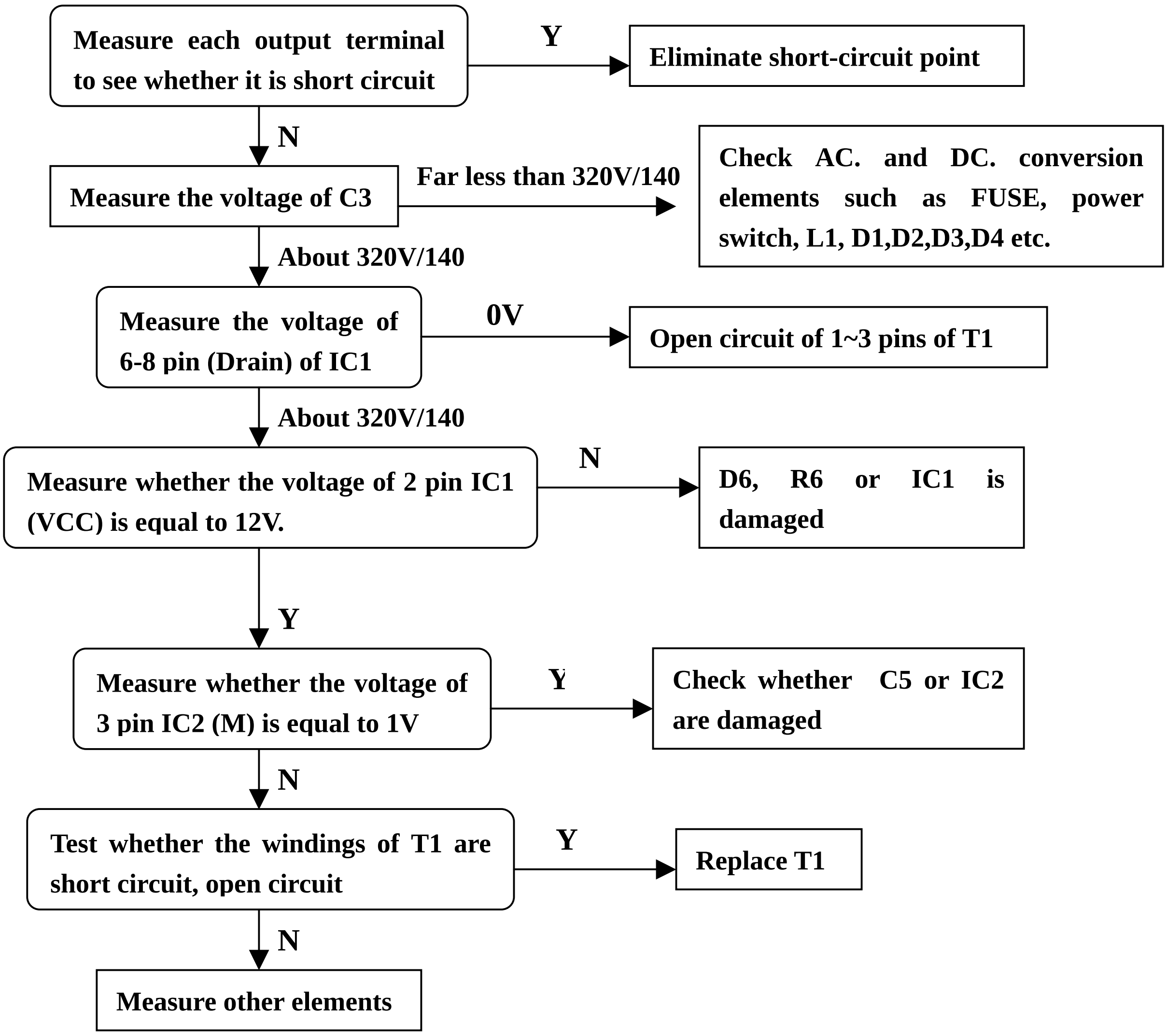
6. Output voltage for the first time

After 5V main feedback winding has been regulated, other windings will be regulated relatively, and the voltage required by each circuit of the DVD machine can be obtained.

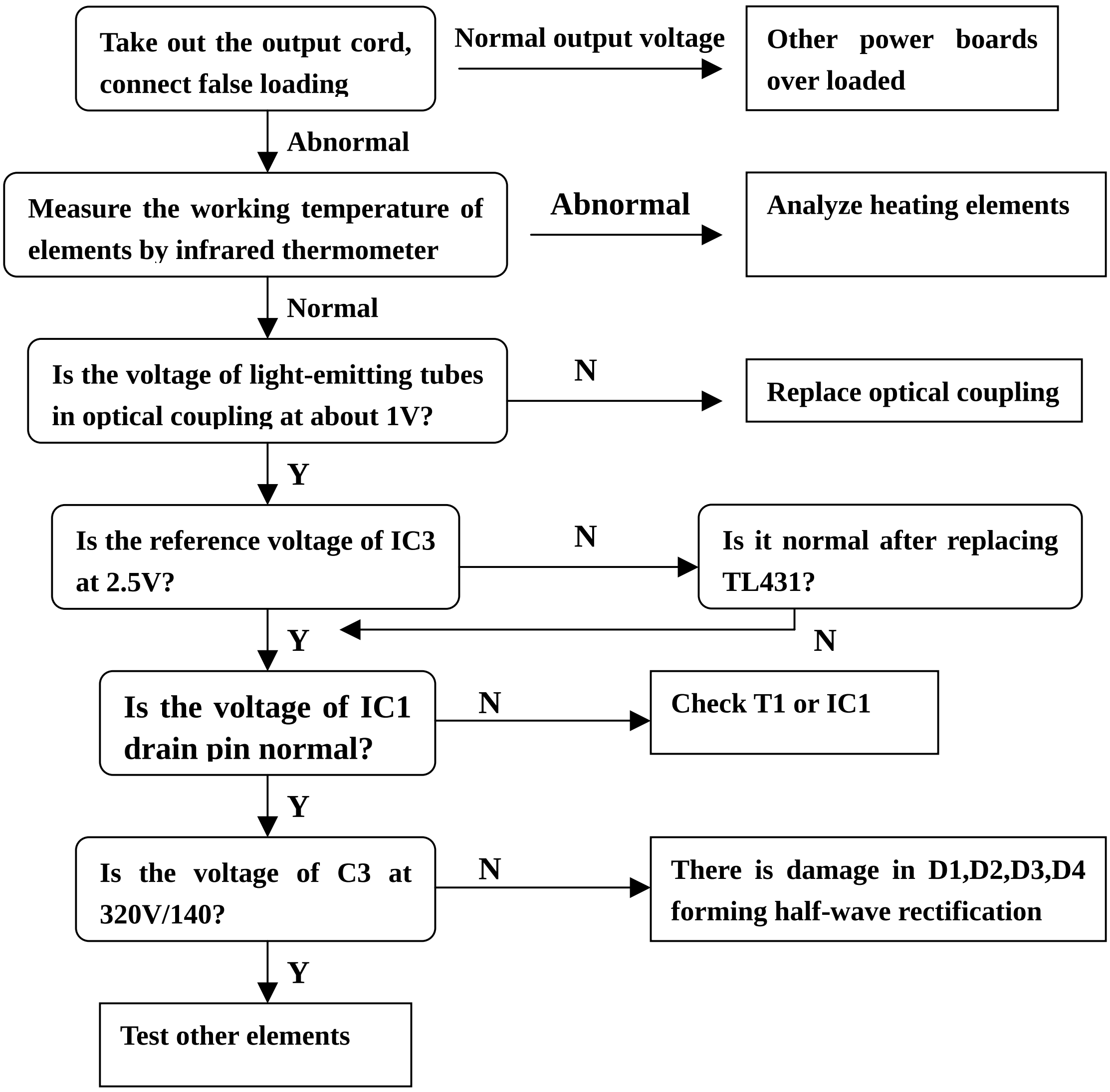
II. Repair flowchart of open/close power:

Below are two flowcharts for troubleshooting which occur frequently when open/close power Repair of Power Board

1. No voltage output



2. Unstable voltage output, decrease of carrier capability



While using BA5954

OPU	R106	R103
Sony310	30K	30K
DL3	27K	20K
IAT510	33K	33K
THMSM507S	47K	34K
HD65/HD62	27K	27K
SPU3153	36K	33K
502W	24K	27K
Arima681	36K	24K

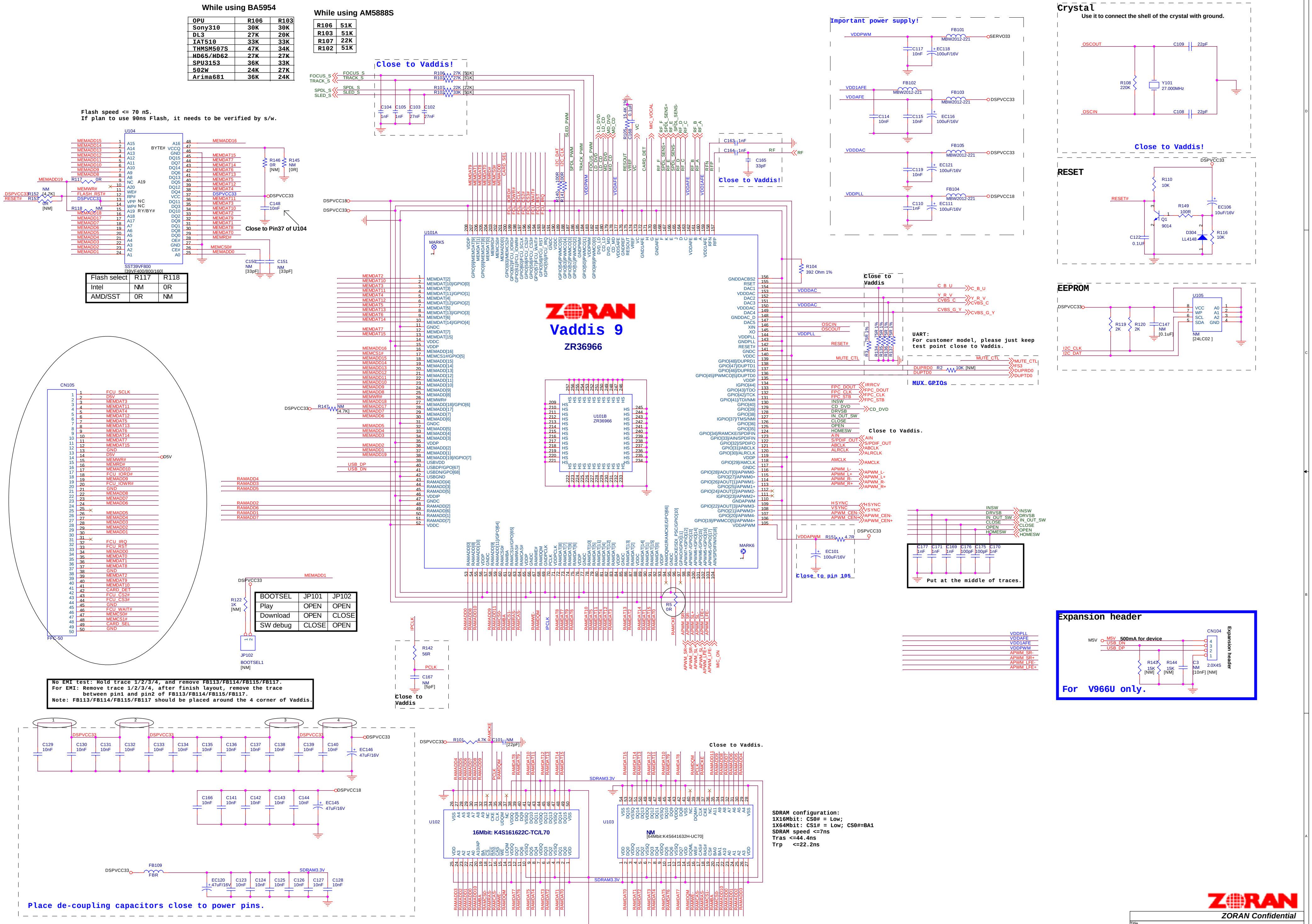
While using AM5888S

R106	51K
R103	51K
R107	22K
R102	51K

Flash speed <= 70 nS.
If plan to use 90ns Flash, it needs to be verified by s/w.

Flash select	R117	R118
Intel	NM	0R
AMD/SST	0R	NM

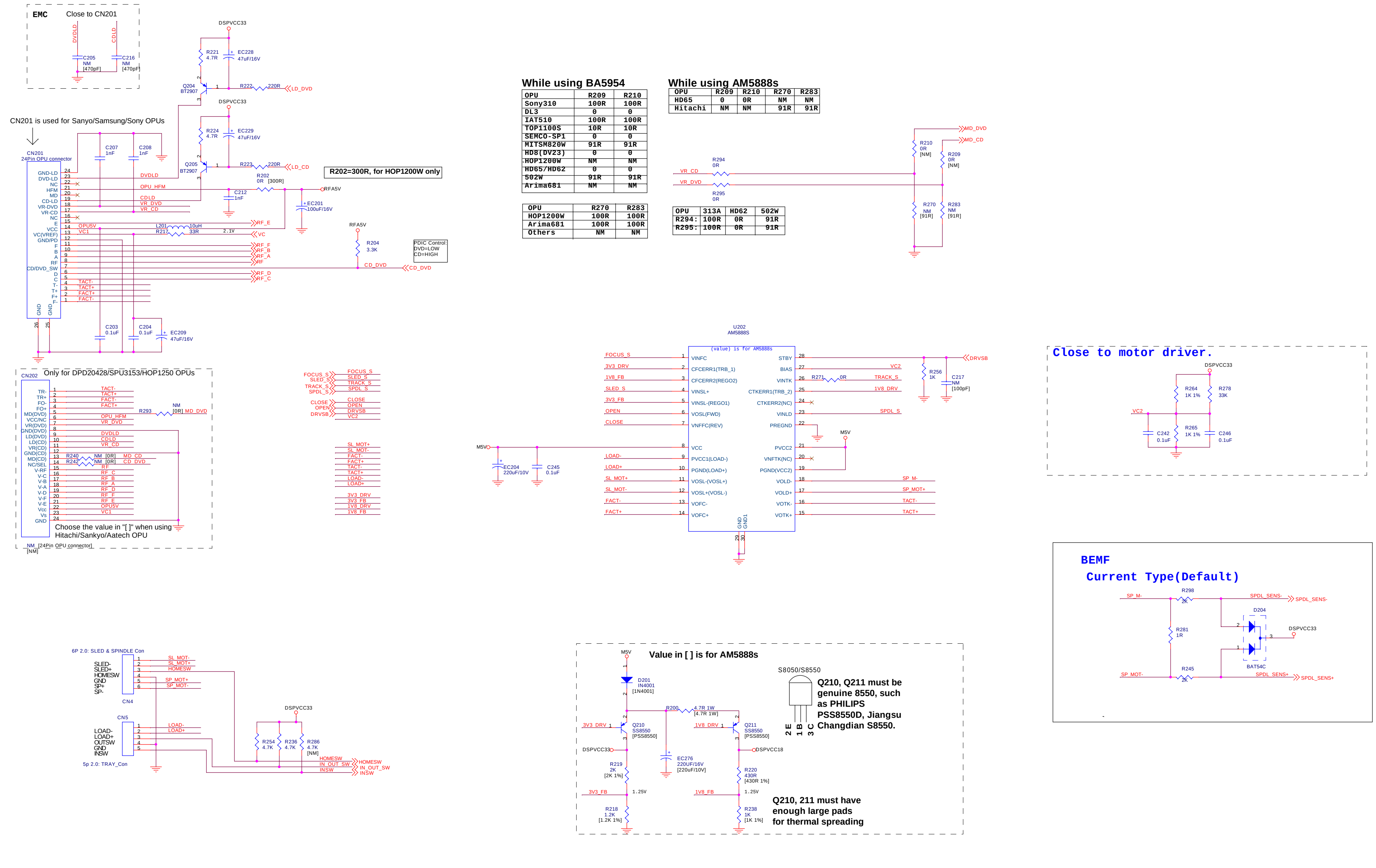
BOOTSEL	JP101	JP102
Play	OPEN	OPEN
Download	OPEN	CLOSE
SW debug	CLOSE	OPEN



No EMI test: Hold trace 1/2/3/4, and remove FB113/FB114/FB115/FB117.
For EMI: Remove trace 1/2/3/4, after finish layout, remove the trace between pin1 and pin2 of FB113/FB114/FB115/FB117.
Note: FB113/FB114/FB115/FB117 should be placed around the 4 corner of Vaddis.

SDRAM configuration:
1X16Mbit: CS0# = Low;
1X64Mbit: CS1# = Low; CS0#=BA1
SDRAM speed <=7ns
Tras <=44.4ns
Trp <=22.2ns

Title: DC0		
Size: Custom	Document Number: Vaddis, Flash, SDRAM	Rev: 30
Date: Wednesday, June 28, 2006	Sheet 4 of 7	



While using BA5954

OPU	R209	R210
Sony310	100R	100R
DL3	0	0
IAT510	100R	100R
TOP1100S	10R	10R
SEMCO-SP1	0	0
MITSM820W	91R	91R
HD8(DV23)	0	0
HOP1200W	NM	NM
HD65/HD62	0	0
502W	91R	91R
Arima681	NM	NM

OPU	R270	R283
HOP1200W	100R	100R
Arima681	100R	100R
Others	NM	NM

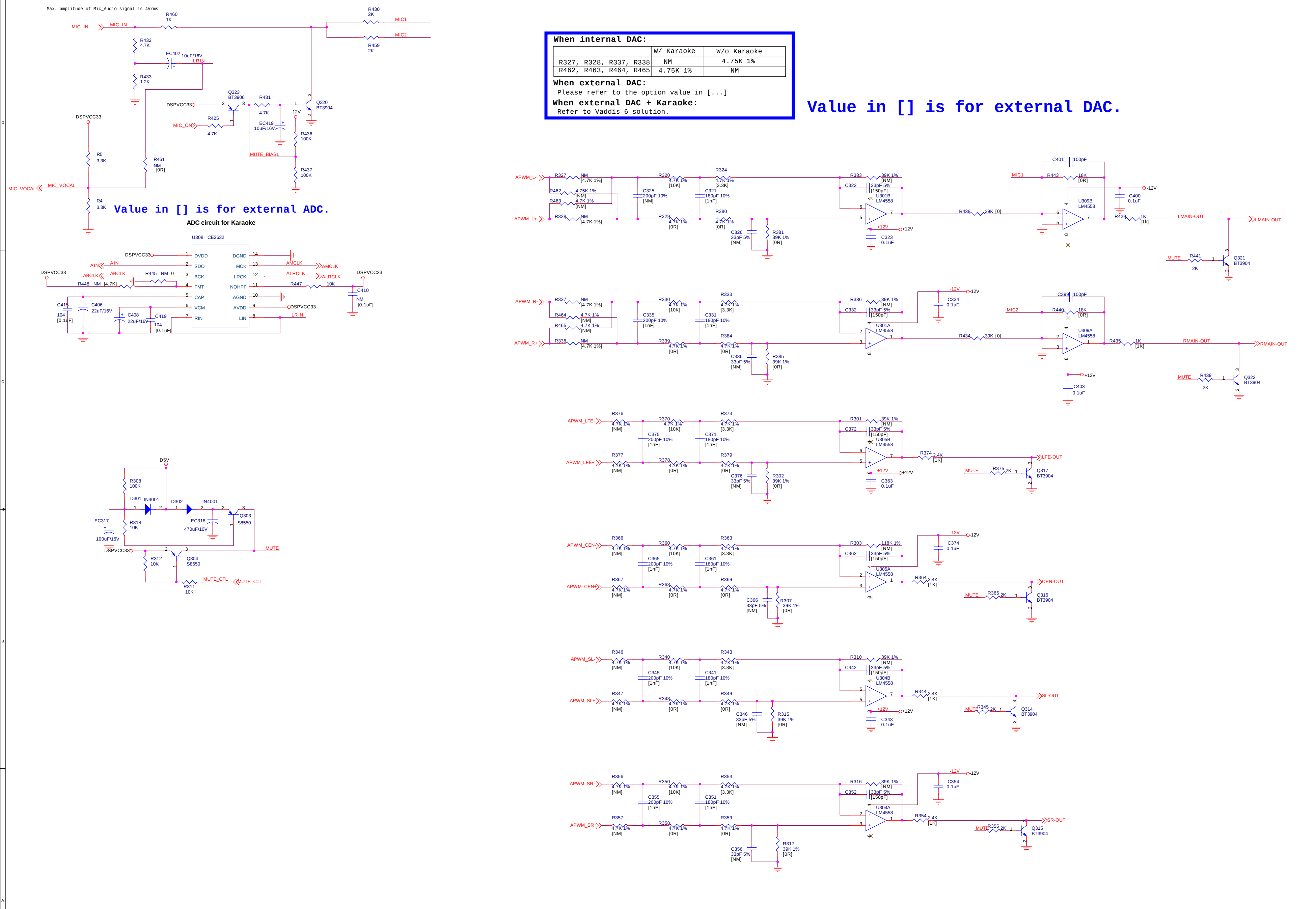
While using AM5888s

OPU	R209	R210	R270	R283
HD65	0	0R	NM	NM
Hitachi	NM	NM	91R	91R

OPU	313A	HD62	502W
R294:	100R	0R	91R
R295:	100R	0R	91R

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Title	DC0	
Size Custom	Document Number: Front End & Regulator	Rev 30
Date: Wednesday, June 28, 2006	Sheet 5 of 7	



When internal DAC:

	W/ Karaoke	W/o Karaoke
R327, R328, R337, R338	NM	4.75K 1%
R462, R463, R464, R465	4.75K 1%	NM

When external DAC:
Please refer to the option value in [...]

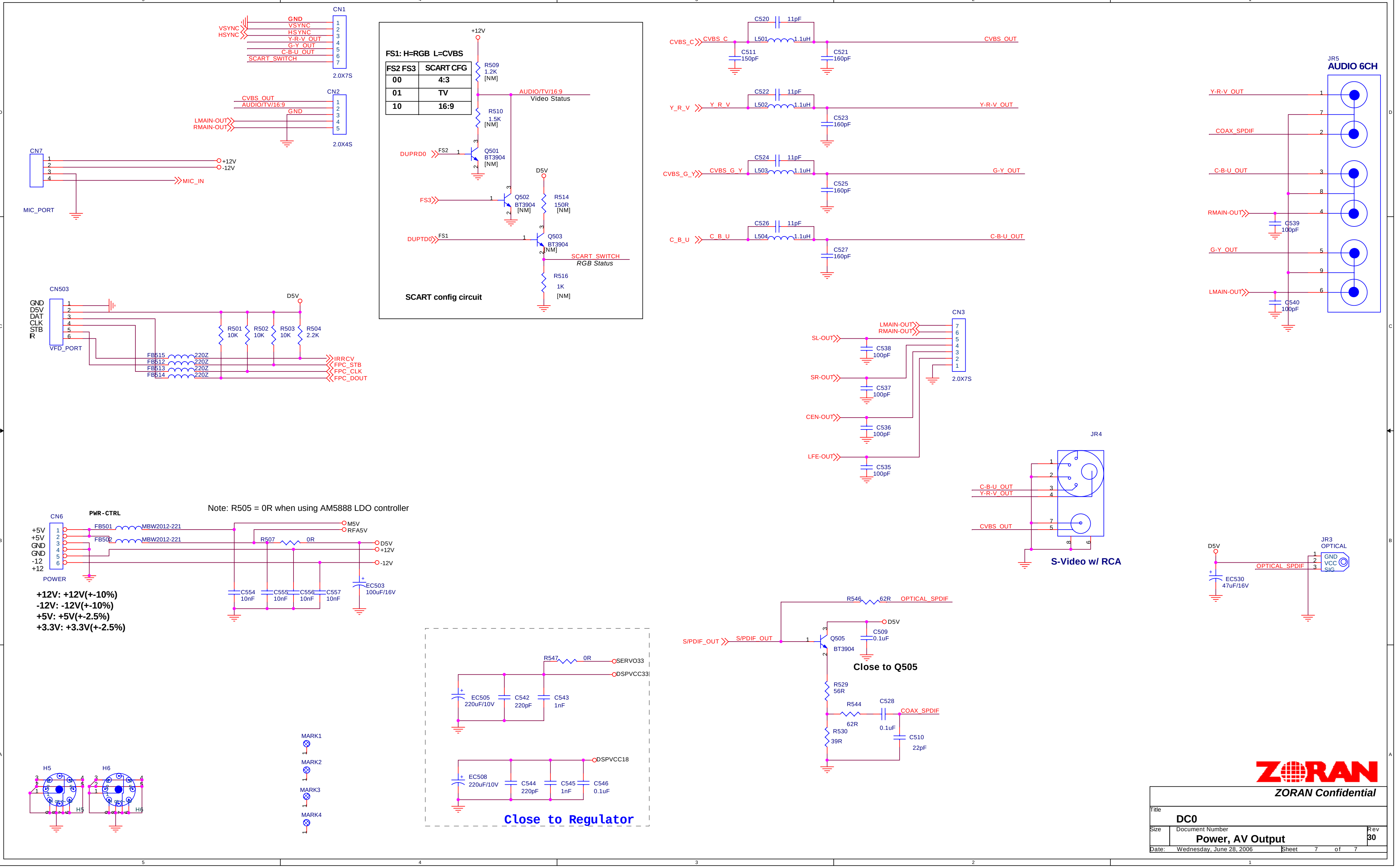
When external DAC + Karaoke:
Refer to Vaddis 6 solution.

Value in [] is for external DAC.

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Title	DC0	
Size: Custom	Document Number: Back End	Rev: 30
Date: Wednesday, June 28, 2006	Sheet 6 of 7	



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Title	DC0
Size	Document Number: Power, AV Output
Rev	30
Date:	Wednesday, June 28, 2006
Sheet	7 of 7

ZORAN36966 decoder board service manual

Please check the power supply to decoder board is normal before checking the decoder board.

一. **Check the power supply voltage has the normal wave.**

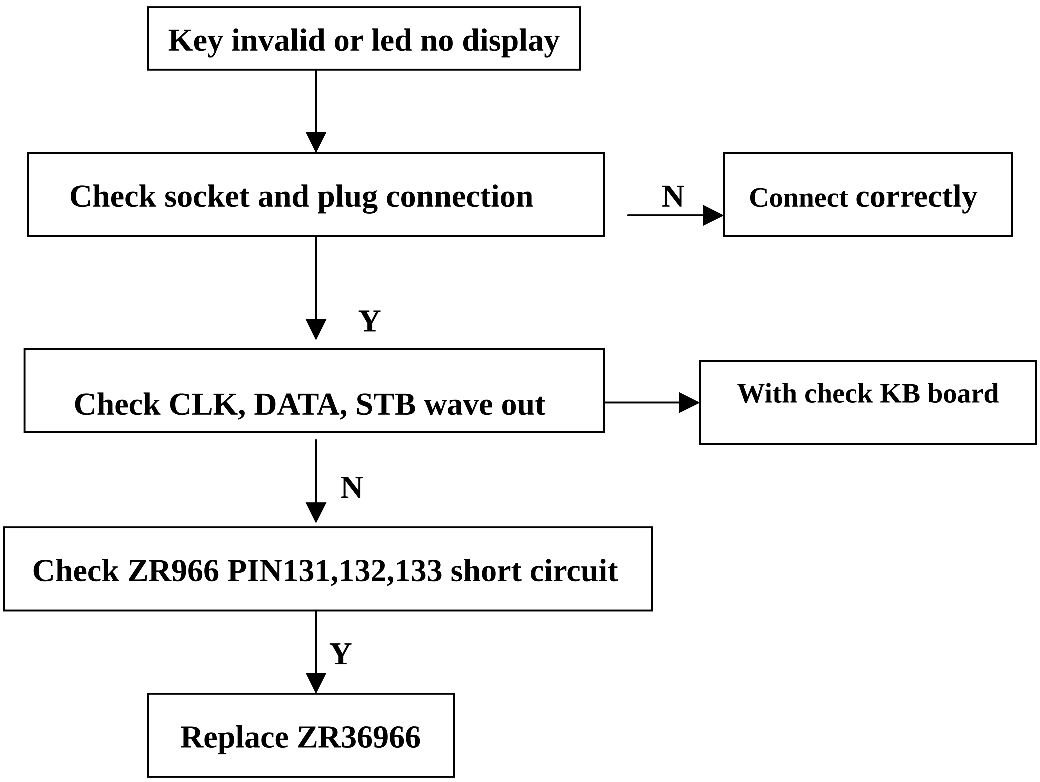
+5V，+12V，-12V.

二. **Check reset circuit (reset at high electrical level)**

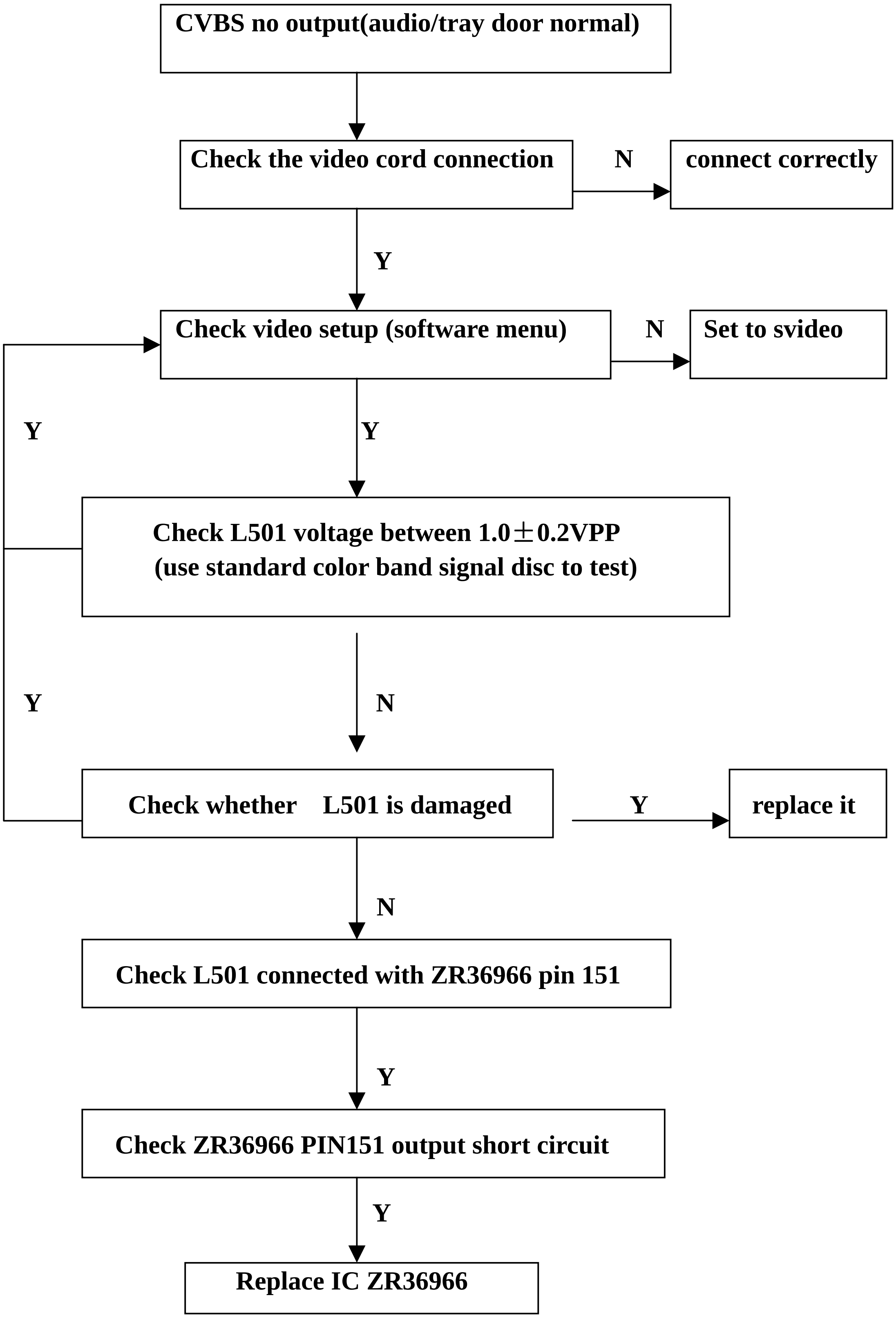
三. **Check crystal circuit (27MHz) and sdram frequency (108MHz)**

Decoder board repair flow chart: (Diagram not included)

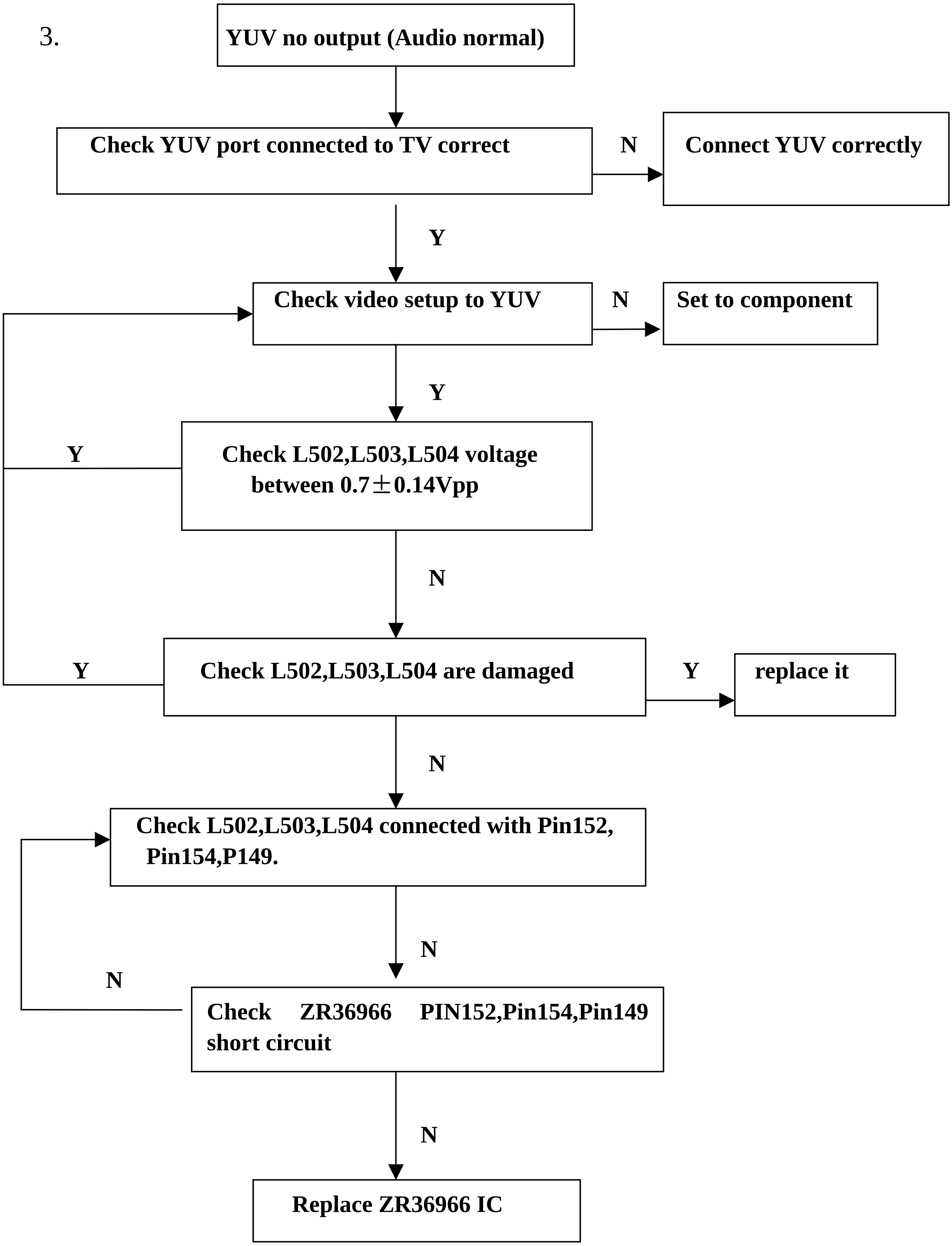
1.



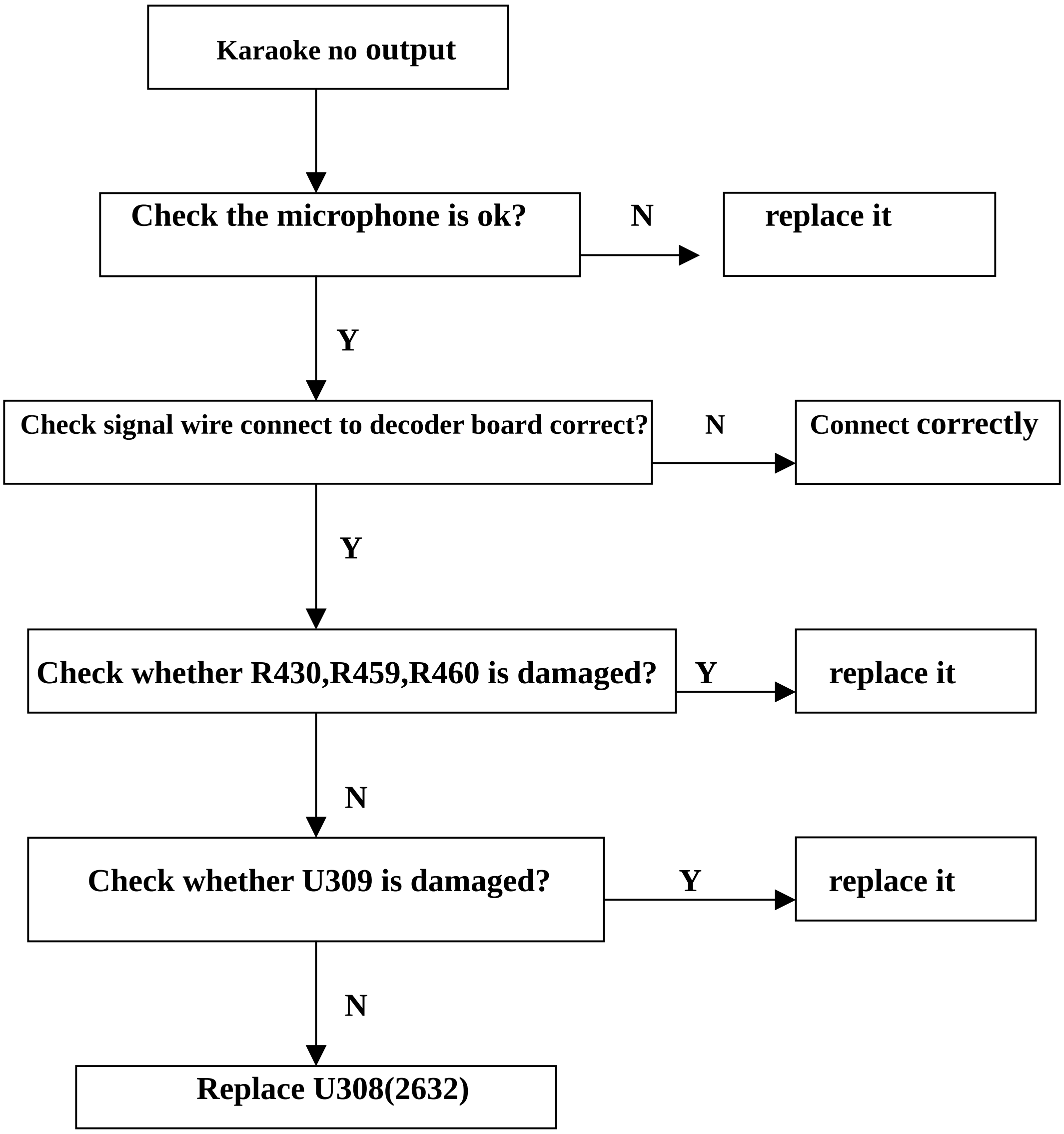
2.


CVBS no output(audio/tray door normal)
Check the video cord connection
N
connect correctly
Y
Check video setup (software menu)
N
Set to svideo
Y
Y
Check L501 voltage between 1.0±0.2VPP
(use standard color band signal disc to test)
Y
N
Check whether L501 is damaged
Y
replace it
N
Check L501 connected with ZR36966 pin 151
Y
Check ZR36966 PIN151 output short circuit
Y
Replace IC ZR36966

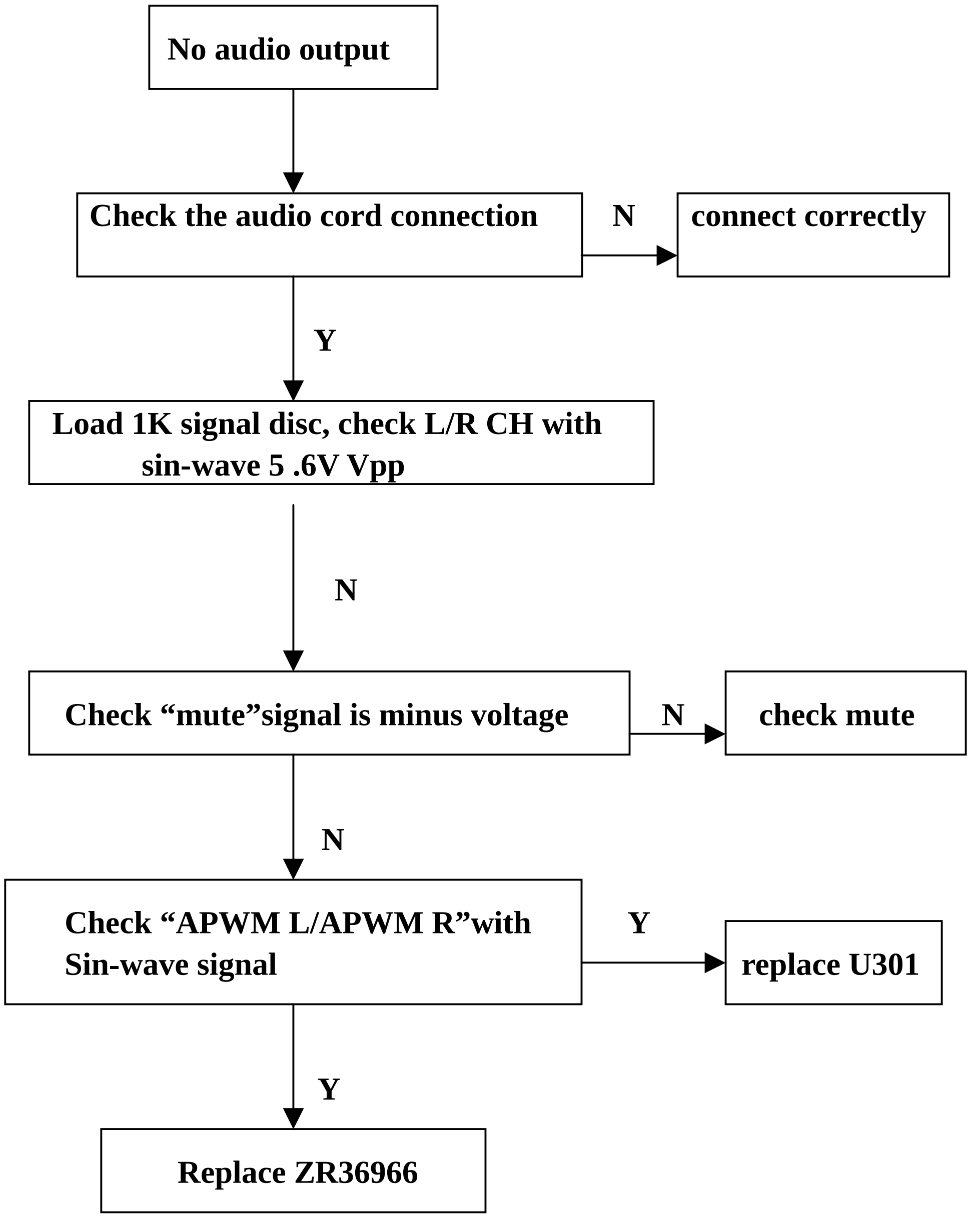
3.


YUV no output (Audio normal)
Check YUV port connected to TV correct
N
Connect YUV correctly
Y
Check video setup to YUV
N
Set to component
Y
Y
Check L502,L503,L504 voltage between 0.7±0.14Vpp
N
Y
Check L502,L503,L504 are damaged
Y
replace it
N
Check L502,L503,L504 connected with Pin152, Pin154,P149.
N
N
Check ZR36966 PIN152,Pin154,Pin149 short circuit
N
Replace ZR36966 IC

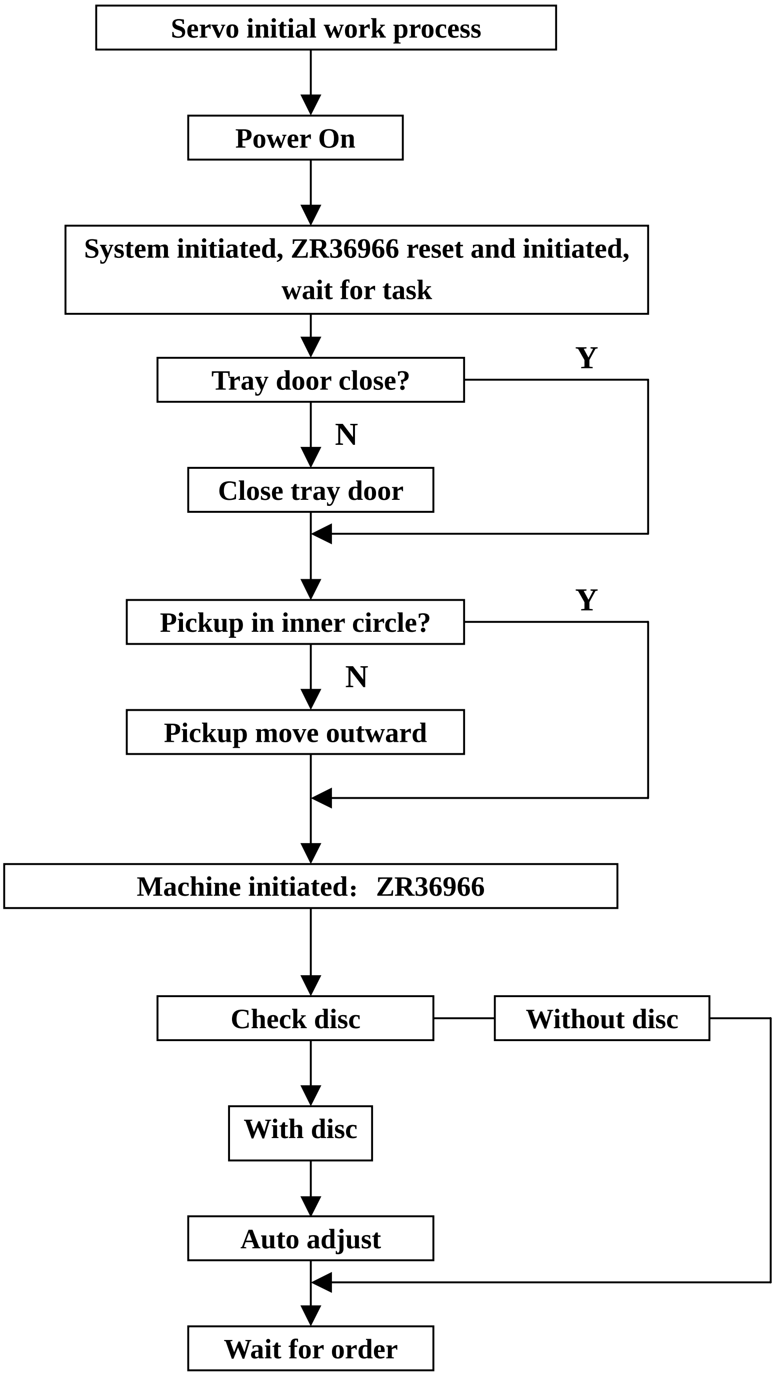
4.


Karaoke no output
Check the microphone is ok?
N
replace it
Y
Check signal wire connect to decoder board correct?
N
Connect correctly
Y
Check whether R430,R459,R460 is damaged?
Y
replace it
N
Check whether U309 is damaged?
Y
replace it
N
Replace U308(2632)

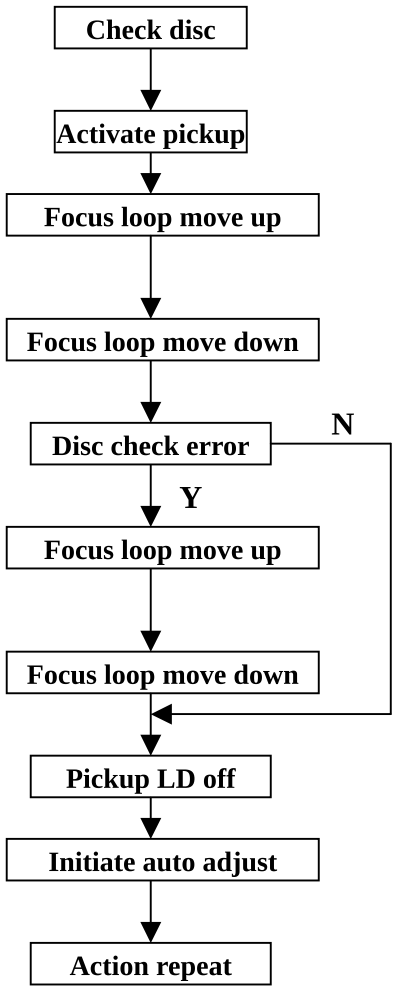
5.


No audio output
Check the audio cord connection
N
connect correctly
Y
Load 1K signal disc, check L/R CH with sin-wave 5 .6V Vpp
N
Check "mute"signal is minus voltage
N
check mute
N
Check "APWM L/APWM R"with Sin-wave signal
Y
replace U301
Y
Replace ZR36966

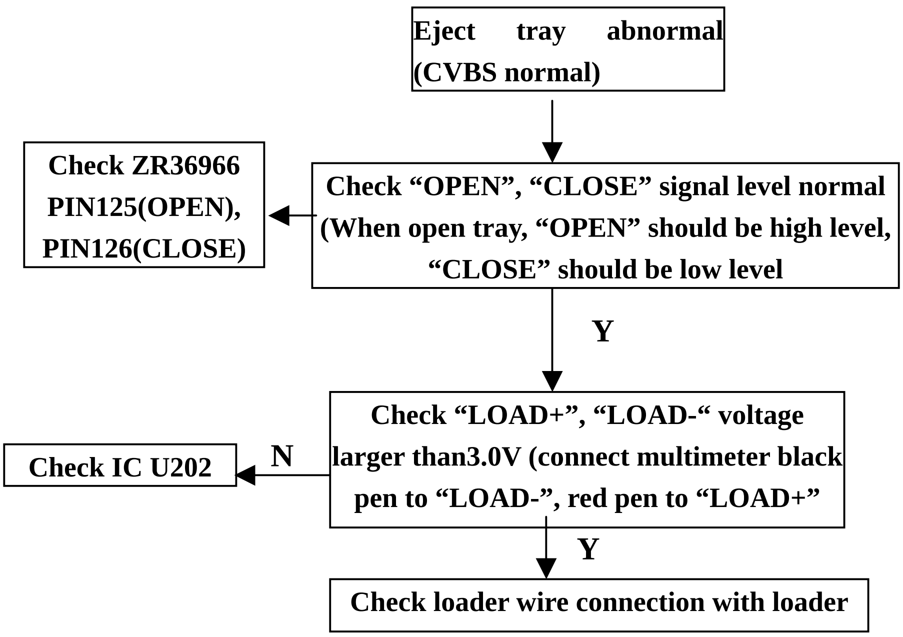
6.

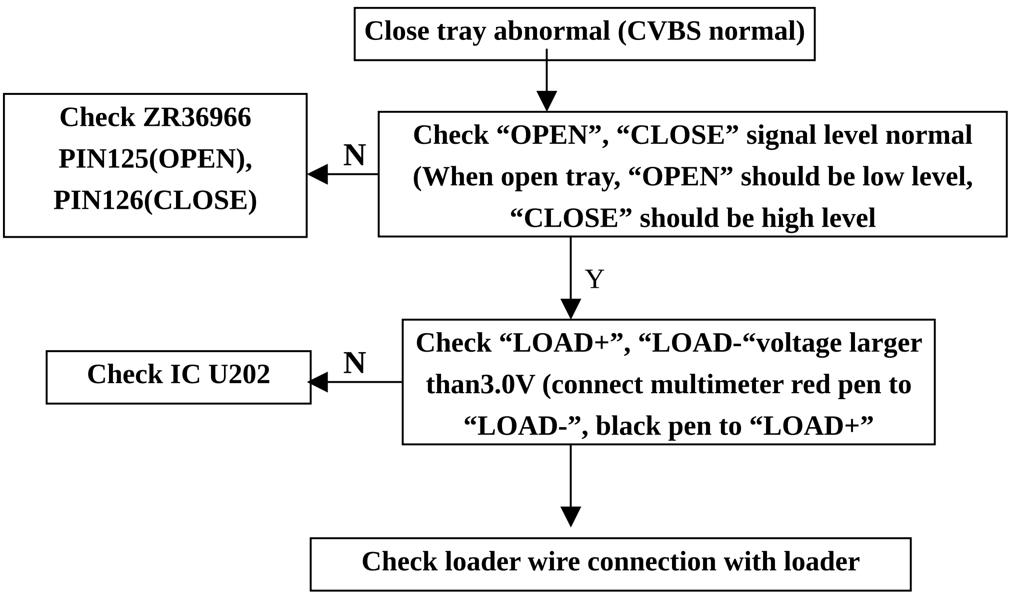

Servo initial work process
Power On
System initiated, ZR36966 reset and initiated, wait for task
Tray door close?
Y
N
Close tray door
Pickup in inner circle?
Y
N
Pickup move outward
Machine initiated：ZR36966
Check disc
Without disc
With disc
Auto adjust
Wait for order

7.

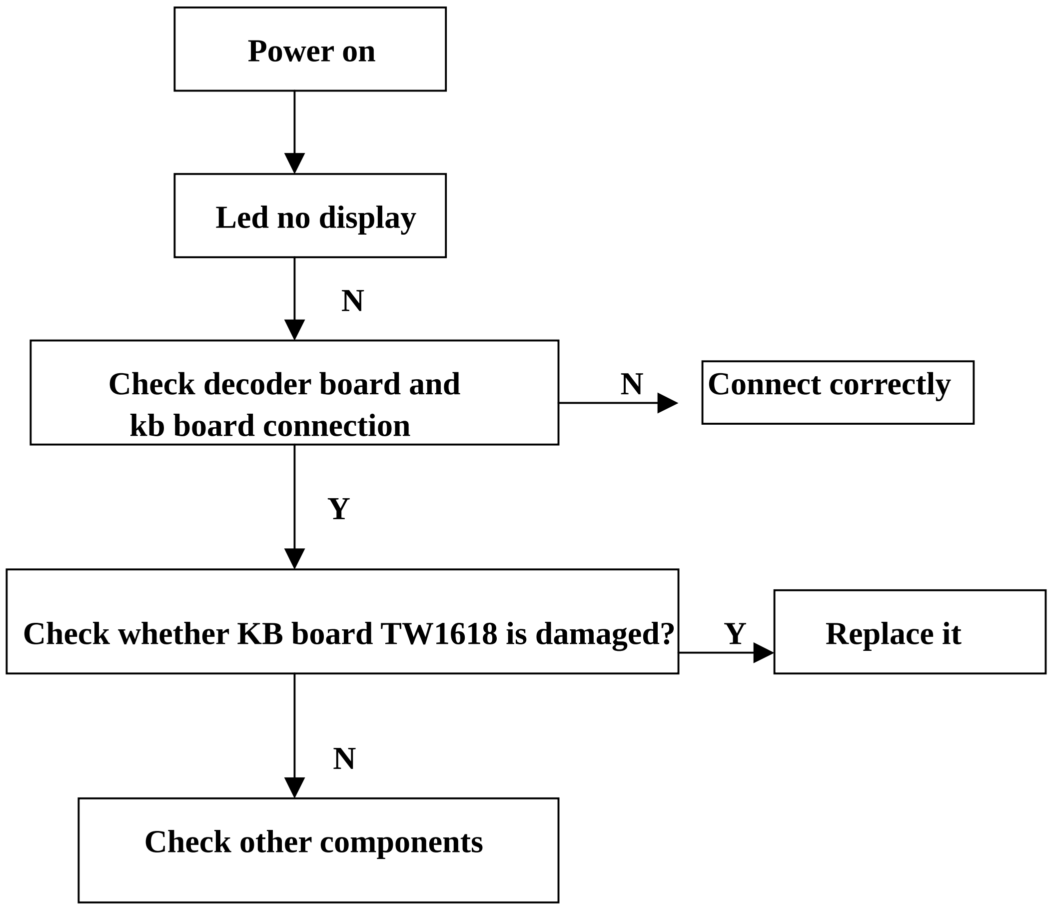

Check disc
Activate pickup
Focus loop move up
Focus loop move down
Disc check error
N
Y
Focus loop move up
Focus loop move down
Pickup LD off
Initiate auto adjust
Action repeat

8.

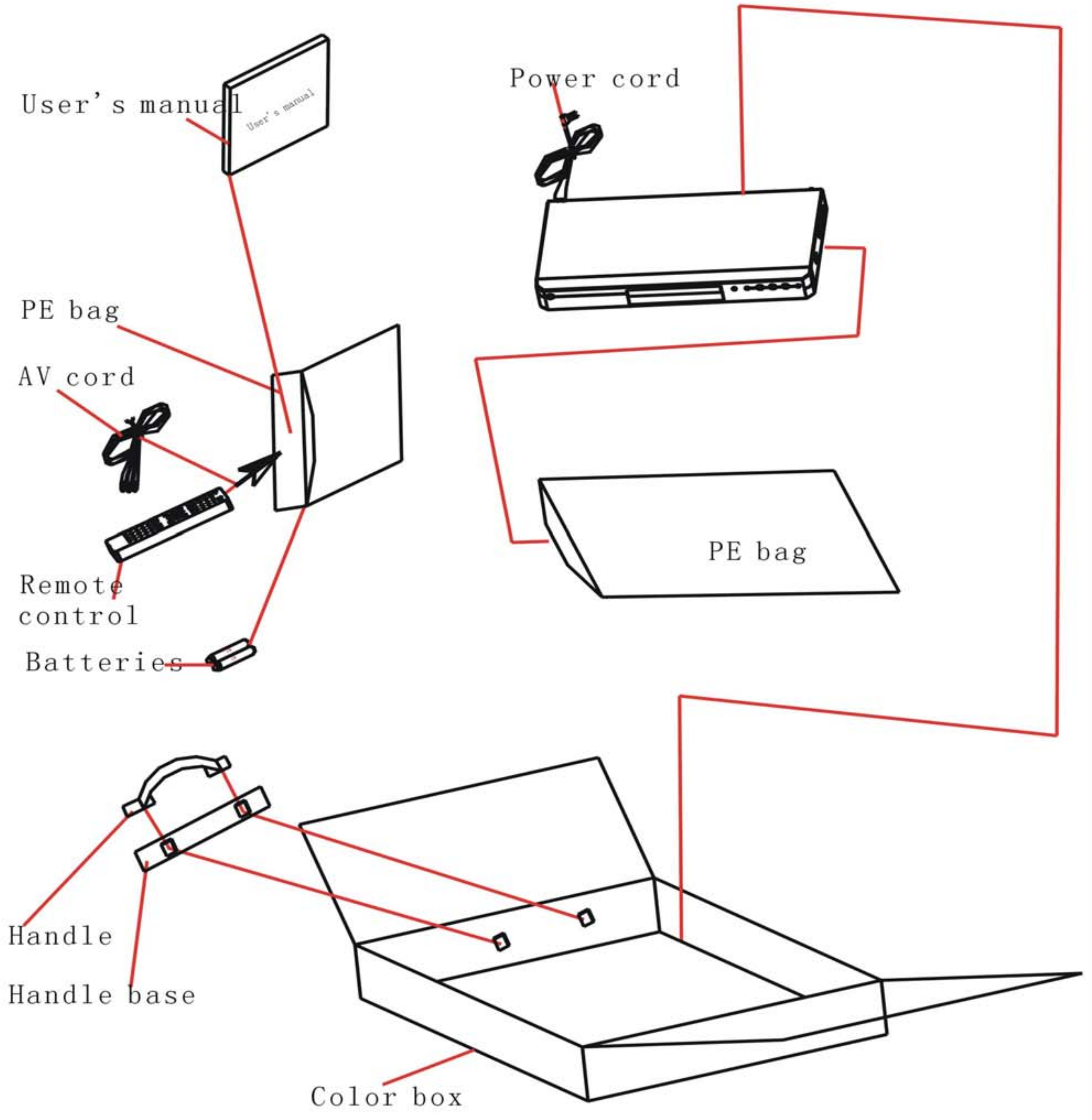

Eject tray abnormal (CVBS normal)
Check “OPEN”, “CLOSE” signal level normal (When open tray, “OPEN” should be high level, “CLOSE” should be low level
Check ZR36966 PIN125(OPEN), PIN126(CLOSE)
Y
Check “LOAD+”, “LOAD-“ voltage larger than3.0V (connect multimeter black pen to “LOAD-”, red pen to “LOAD+”
N
Check IC U202
Y
Check loader wire connection with loader

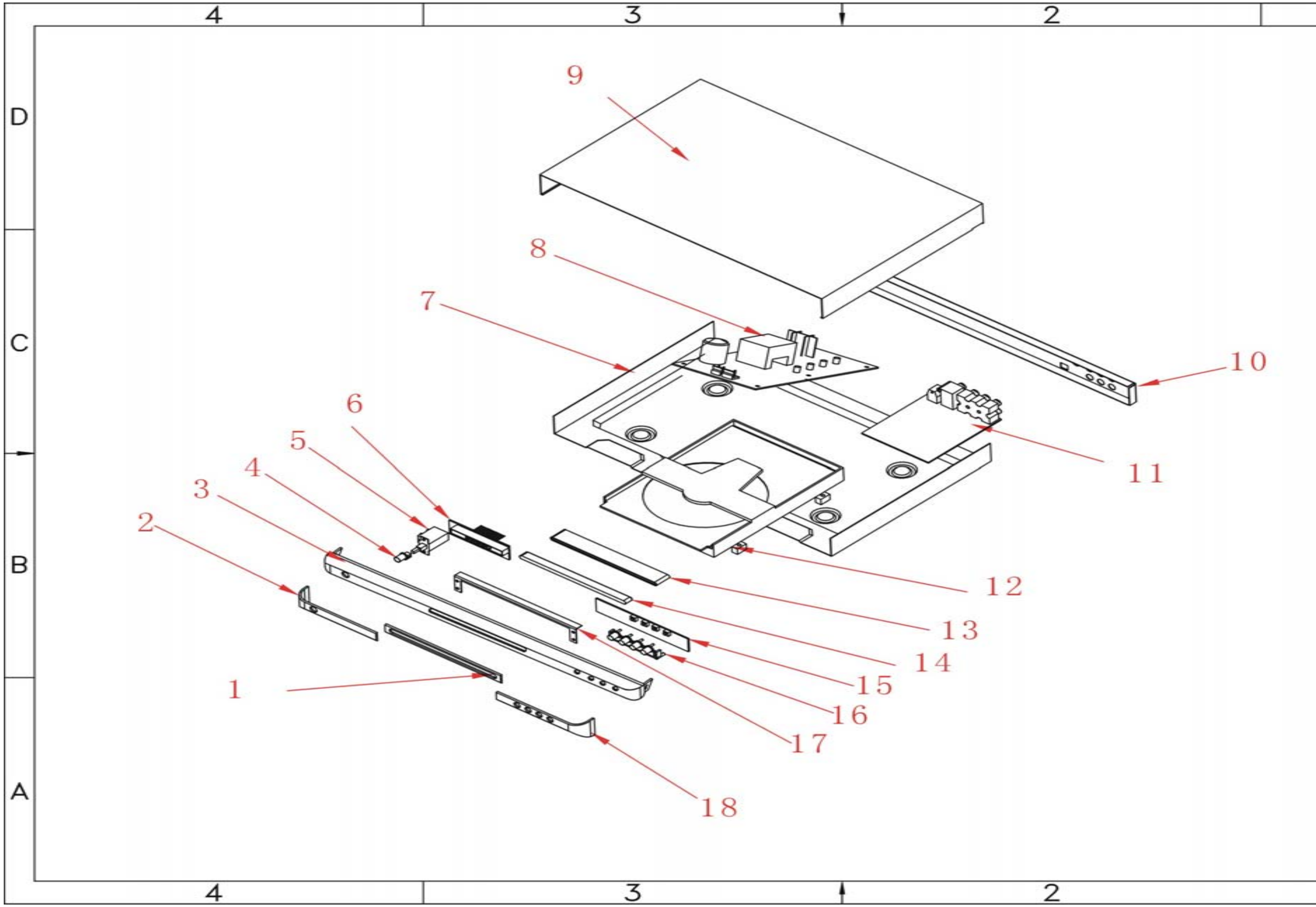

Close tray abnormal (CVBS normal)
Check “OPEN”, “CLOSE” signal level normal (When open tray, “OPEN” should be low level, “CLOSE” should be high level
N
Check ZR36966 PIN125(OPEN), PIN126(CLOSE)
Y
Check “LOAD+”, “LOAD-“voltage larger than3.0V (connect multimeter red pen to “LOAD-”, black pen to “LOAD+”
N
Check IC U202
Check loader wire connection with loader

KB BOARD SERVICE PROCEDURE



Package Diagram

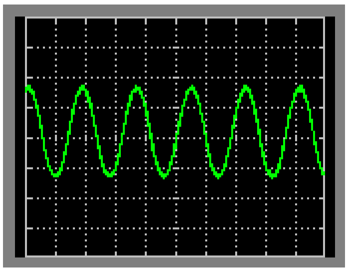




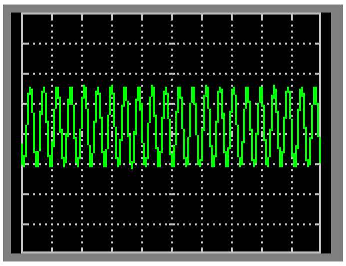
18	RIGHT LENS	1
17	LOADER BRACKET	1
16	4P KEY	1
15	RIGHTFRONT CONTROL BOARD	1
14	TRAY DOOR LENS	1
13	TRAY DOOR	1
12	PLASTIC COVER	1
11	DECODER BOARD	1
10	REAL PANEL	1
9	UPPER CASE	1
8	POWER BOARD	1
7	BOTTOM PANEL	1
6	LEFT FRONT CONTROL OARD	1
5	POWER SWITCH	1
4	POWER BUTTON	1
3	PANEL	1
2	LEFT LENS	1
1	MIDDLE LENS	1
序	品	用

Main point waveforms of electronic components

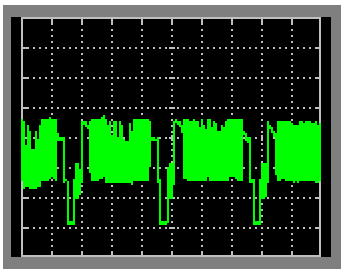
Reference waveform of key test point of power board



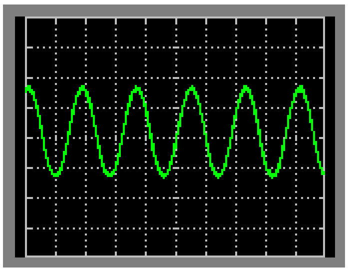
TP1 27MHz XTAL



TP2 SDRAM frequency 108MHz



TP3 CVBS



TP4 AUDIO 1KHz